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ABSTRACT

This report presents the mathematics assessment results from the 1992 National Assessment of Educational Progress (NAEP). The assessment included nearly 250,000 fourth-, eighth-, and twelfth-grade students attending approximately 10,000 schools across the nation and the states. Students' performance is categorized into three achievement levels: Basic, Proficient, and Advanced. Among the major findings were that: (1) for the nation there were statistically significant increases in average mathematics proficiency in all grades and in both public and private schools from 1990 to 1992; (2) despite these positive findings, 60 percent of the students in grades 4, 8, and 12 were estimated to be at or above the Basic level on the 1992 mathematics assessment; (3) considerable variation in performance existed within and across states and territories; (4) increases in mathematics proficiency between 1990 and 1992 did little to alter the relative standings of the demographic groups; (5) gains were noted in the content areas of numbers and operations, measurement, geometry, data analysis, and algebra, and (6) one-fifth of the 4th graders, two-thirds of the 8th graders, and 90 percent of the 12th graders demonstrated ability in solving two-step problems involving multiplication and division. Chapter 1 contains overall achievement results for the states by grade and by state. Chapter 2 contains results for the nation and states by the demographic groups of race/ethnicity (White, Black, Hispanic, Asian/Pacific Islander, American Indian); gender; type of community (advantaged urban, disadvantaged urban, extreme rural, and other); parents' highest level of education; and type of school (public, Catholic, private). Chapter 3 contains national and state mathematical content areas of estimation, numbers and operations, measurement, geometry, statistics, algebra, and functions. The four appendices, one-third of the document, discuss NAEP's anchor-level results, the guidelines for sample participation, state contextual background factors, and an overview of the procedures used in the 1992 mathematics assessments. (MDH)

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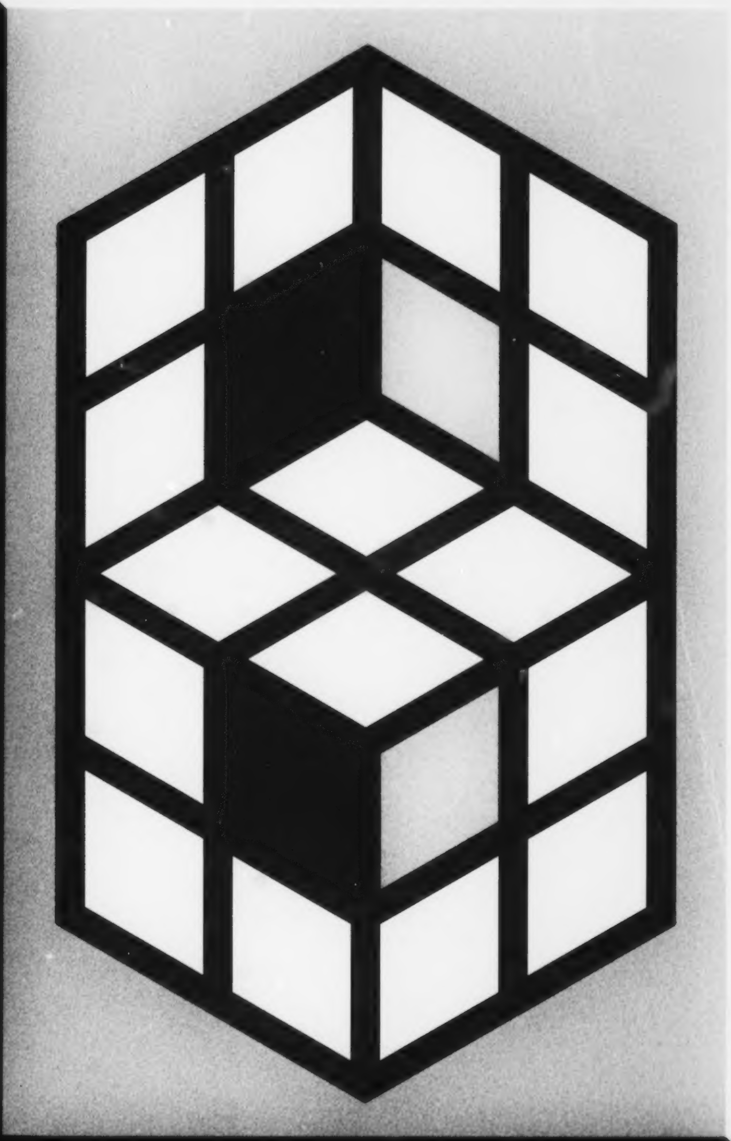

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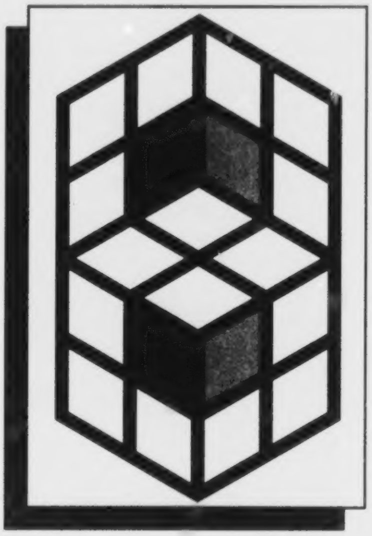

Ina V. S. Mullis

John A. Dossey

Eugene H. Owen

Gary W. Phillips

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April 1993

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EXECUTIVE SUMMARY

The results from NAEP's 1992 mathematics assessment indicate that student performance is improving nationally and in some states, but that a considerable challenge remains. Proportions of students at the higher achievement levels continue to be low, particularly for those subpopulations of students historically considered to be "at risk."

MAJOR FINDINGS

- For the nation, there were statistically significant increases in average mathematics proficiency between 1990 and 1992 for fourth-, eighth-, and twelfth-grade students, both public and private schools combined. Eighteen of 37 states and territories that participated in the grade 8 Trial State Assessment Program in both 1990 and 1992 showed significantly increased average mathematics proficiency for their public-school students.

- Despite these positive findings, just over 60 percent of the students in grades 4, 8, and 12 were estimated to be at or above the Basic level on the 1992 mathematics assessment. At this level, students should exhibit partial mastery of the knowledge and skills fundamental for proficient work.

Nationally, across the three grades, 25 percent or fewer were estimated to be at the Proficient level or beyond, where students should exhibit evidence of solid academic performance. The percentages of students attaining the Advanced level, where students should exhibit superior performance, ranged from an estimated 2 to 4 percent.

- Within and across participating states and territories, there was considerable variation in performance. At grade 4, the percentages of students estimated to be at the Basic level or beyond ranged from 25 to 76 percent, while those at grade 8 ranged from 13 to 82 percent. The percentages of fourth and eighth graders estimated to be at or above the Proficient level ranged from 5 to 25 percent and from 1 to 37 percent, respectively. From 0 to 6 percent of the fourth and eighth graders were estimated to have attained the Advanced level.

- The states with the highest average mathematics proficiency at grade 4 included Maine, Iowa, New Hampshire, Wisconsin, North Dakota, Minnesota, New Jersey, Connecticut, Massachusetts, and Nebraska. At grade 8, the top-performing states included Iowa, North Dakota, Minnesota, Maine, New Hampshire, Wisconsin, and Nebraska.

  - The Southeast continued to trail behind the Northeast, Central, and West at all three grades assessed.

  - Asian/Pacific Islander and White students had higher average mathematics proficiency than did Black students, with American Indian and Hispanic students performing somewhere in between. Two-thirds or more of the Asian/Pacific Islander and White students were estimated to have achievement at or above the Basic level, while fewer than one-half of the American Indian, Black, and Hispanic students demonstrated achievement at the partial mastery level.

  - Gender differences were not large, but males tended to outperform female students at grade 12. For example, 18 percent of the males were estimated to be at or above the Proficient level compared to 14 percent of the females.

- The increases in mathematics proficiency between 1990 and 1992 for the nation and in many states did little to alter the relative standings of the demographic groups.

  - Average performance increased for White students at all three grades. The only other statistically significant gains in average mathematics proficiency by racial/ethnic group were found for Black and Hispanic students at grade 12.

  - Average mathematics proficiency for both males and females increased at all three grades.

  - Students attending schools in the top one-third of the performance distribution showed increased mathematics proficiency at all three grades. The only gain for students attending schools in the bottom one-third of the distribution occurred at grade 12.

- 'A number of gains were noted for the nation and the states in the mathematics content areas assessed by NAEP, including Numbers and Operations, Measurement, Geometry, Data Analysis/Statistics, and Algebra.

- Seventy-two percent of the fourth graders and nearly all of the eighth and twelfth graders were estimated to have shown some success in addition, subtraction, and simple problem solving with whole numbers.

- Approximately one-fifth of the fourth graders, two-thirds of the eighth graders, and 90 percent of the twelfth graders were estimated to have also demonstrated ability in solving two-step problems involving multiplication and division.

- One-fifth and one-half of the students at grades 8 and 12, respectively, were estimated to have solved problems involving fractions, decimals, and percents as well as elementary concepts in geometry, statistics, and algebra.

- Only 6 percent of the high-school seniors and 1 percent of the eighth graders were estimated to have demonstrated consistent success in the areas of geometric relationships, algebra, and functions.

The Scope of NAEP's 1992 Mathematics Assessment

NAEP's 1992 mathematics assessment included nearly 250,000 fourth-, eighth-, and twelfth-grade students attending approximately 10,000 schools across the nation and the states. The assessment itself was forward-looking, comprising several hundred questions at each of the grades assessed. Consistent with standards developed by the National Council of Teachers of Mathematics, many questions required students to construct their responses and some questions asked for explanations of their reasoning. For various portions of the assessment, mathematical tools and aids were supplied, including scientific calculators, protractor/rulers, and geometric shapes. One portion was administered using a special audiotape to pace students through estimation questions.

Nationally representative samples of students attending both public and private schools were assessed at grades 4, 8, and 12. In addition, representative samples of fourth and eighth graders attending public schools were assessed in each of 44 jurisdictions. Thus, tables containing only national data present results for public- and private-school students combined, whereas tables containing state data present results only for public-school students.

These participants include:

Alabama
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Hawaii
Idaho
Indiana
Iowa
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
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Ohio
Oklahoma
Pennsylvania
Rhode Island
South Carolina
Tennessee
Texas
Utah
Virginia
West Virginia
Wisconsin
Wyoming

Guam
Virgin Islands*

* The Virgin Islands participated in the testing portion of the 1992 Trial State Assessment Program. However, in accordance with the legislation providing for participants to review and give permission for release of their results, the Virgin Islands chose not to release their results at grade 4 in the national composite report.

Trend results from a comparable assessment conducted in 1990 are available for the nation and for the 37 states and territories (noted above in bold-faced type) that participated in both the 1990 and 1992 programs at grade 8. NAEP's Trial State Assessment Program was begun in 1990 at grade 8 and expanded in 1992 to include both grades 4 and 8.

Achievement Levels

As part of its statutory responsibilities, the National Assessment Governing Board (NAGB) established three achievement levels for reporting NAEP results: Basic, Proficient, and Advanced. The Basic level denotes partial mastery of the knowledge and skills fundamental for Proficient work at each grade. Proficient, the central level, represents solid academic performance and demonstrated competence over challenging subject matter. This is the achievement level the Board has determined all students should reach. The Advanced level signifies superior performance beyond Proficient. The process of setting achievement levels incorporated the views of a broadly representative body of teachers, administrators, and interested members of the public, and enables NAEP data to be reported in terms of what students *should* be able to do.

TABLE 1 presents average mathematics proficiency and performance for the achievement levels at grades 4, 8, and 12 for both 1992 and 1990. The improvement in mathematics performance between 1990 and 1992 is clear. However, more than one-third of the students at all three grades did not reach the lowest level of performance, and no statistically significant increases were found at the Advanced level. The cutpoints for the achievement levels on NAEP's 0 to 500 mathematics proficiency scale are shown in TABLE 2.

TABLE 1 National Overall Average Mathematics Proficiency and Achievement Levels, Grades 4, 8, and 12

			Percentage of Students At or Above			
Grades	**Assessment Years**	**Average Proficiency**	**Advanced**	**Proficient**	**Basic**	**Percentage Below Basic**
4	**1992**	218(0.7)>	2(0.3)	18(1.0)>	61(1.0)>	**39(1.0)<**
	1990	213(0.9)	1(0.4)	13(1.1)	54(1.4)	**46(1.4)**
8	**1992**	268(0.9)>	4(0.4)	25(1.0)>	63(1.1)>	**37(1.1)<**
	1990	263(1.3)	2(0.4)	20(1.1)	58(1.4)	**42(1.4)**
12	**1992**	299(0.9)>	2(0.3)	16(0.9)	64(1.2)>	**36(1.2)<**
	1990	294(1.1)	2(0.3)	13(1.0)	59(1.5)	**41(1.5)**

>The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent confidence that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details).

TABLE 2 Mathematics Proficiency (Scale-Score Cutpoint) Corresponding to Each Achievement Level, Grades 4, 8, and 12

Grades	Advanced	Proficient	Basic
4	280	248	211
8	331	294	256
12	366	334	287

Comparable information for students attending schools ranked by their students' achievement on the assessment is found in TABLE 3. Students in the top one-third of the schools outperformed their counterparts in the bottom one-third of schools by substantial margins, and they showed more improvement between the 1990 and 1992 assessments, especially at grades 4 and 8.

TABLE 3 Average Mathematics Proficiency and Achievement Levels for the Top One-Third of the Schools and the Bottom One-Third of the Schools, Grades 4, 8, and 12

				Percentage of Students At or Above			
	Assessment Years	Percent of Students	Average Proficiency	Advanced	Proficient	Basic	Percentage Below Basic
Grades 4							
Top One-Third Schools	1992	34(2.8)	237(0.8)>	5(0.8)	34(1.5)>	84(1.0)>	16(1.0)<
	1990	34(3.9)	229(1.4)	3(1.1)	25(2.6)	76(1.8)	24(1.8)
Bottom One-Third Schools	1992	29(2.1)	196(1.2)	0(0.1)	4(0.5)	32(1.5)	68(1.5)
	1990	30(3.4)	194(1.7)	0(0.2)	4(0.9)	29(2.5)	71(2.5)
Grades 8							
Top One-Third Schools	1992	29(3.1)	289(1.3)>	8(1.1)	45(2.0)>	86(1.5)>	14(1.5)<
	1990	30(4.4)	280(1.2)	5(1.0)	35(2.0)	78(1.7)	22(1.7)
Bottom One-Third Schools	1992	32(1.8)	245(0.9)	0(0.3)	8(0.8)	37(1.4)	63(1.4)
	1990	34(3.9)	244(1.8)	0(0.3)	8(1.3)	36(2.0)	64(2.0)
Grades 12							
Top One-Third Schools	1992	35(3.1)	316(1.1)>	4(0.7)	29(1.5)	82(1.3)>	18(1.3)<
	1990	34(5.0)	310(1.2)	4(0.9)	23(2.3)	77(1.8)	23(1.8)
Bottom One-Third Schools	1992	27(2.2)	279(1.0)>	0(0.2)	5(0.9)	40(1.6)	60(1.6)
	1990	26(3.3)	274(1.5)	0(0.2)	3(0.9)	35(2.7)	65(2.7)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent confidence for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 percent or less were rounded to 0 percent.

Average proficiency and achievement level data for the participating jurisdictions at grades 4 and 8 are presented in TABLE 4. Even though there was considerable variation in performance across the states, the results tend to parallel those of the nation. Percentages of students reaching the Advanced and Proficient achievement levels remain low, although progress was made between 1990 and 1992 at grade 8. (Please note that the national and regional results included in TABLE 4 and in other tables containing state data will differ from those provided for the entire sample of private- and public-school students as shown in TABLE 5. To be comparable to the data for states and territories, the national and regional results in these tables are based only on students attending public schools.)

TABLE 4 | Overall Average Mathematics Proficiency and Achievement Levels

PUBLIC SCHOOLS	Grade 4 - 1992				
	Average Proficiency	Percentage of Students At or Above Advanced	Percentage of Students At or Above Proficient	Percentage of Students At or Above Basic	Percentage of Students Below Basic
NATION	217 (0.8)	2 (0.3)	18 (1.1)	59 (1.1)	41 (1.1)
Northeast	223 (2.1)	3 (0.8)	23 (2.9)	64 (3.0)	36 (3.0)
Southeast	209 (1.9)	1 (0.4)	11 (1.4)	48 (2.5)	52 (2.5)
Central	222 (2.2)	2 (0.6)	20 (2.1)	66 (3.2)	34 (3.2)
West	217 (1.6)	2 (0.7)	17 (2.1)	59 (2.2)	41 (2.2)
STATES					
Alabama	207 (1.6)	1 (0.2)	10 (1.3)	45 (2.2)	55 (2.2)
Arizona	214 (1.1)	1 (0.3)	13 (0.9)	55 (1.7)	45 (1.7)
Arkansas	209 (0.9)	1 (0.2)	10 (0.8)	49 (1.3)	51 (1.3)
California	207 (1.6)	2 (0.5)	13 (1.2)	48 (2.0)	52 (2.0)
Colorado	220 (1.0)	2 (0.4)	18 (1.1)	62 (1.4)	38 (1.4)
Connecticut	226 (1.2)	4 (0.6)	25 (1.4)	69 (1.5)	31 (1.5)
Delaware	217 (0.8)	2 (0.4)	17 (0.8)	56 (1.0)	44 (1.0)
Dist. Columbia	191 (0.5)	1 (0.2)	6 (0.3)	25 (1.0)	75 (1.0)
Florida	212 (1.5)	2 (0.4)	14 (1.4)	53 (2.0)	47 (2.0)
Georgia	214 (1.3)	2 (0.4)	16 (1.2)	55 (1.7)	45 (1.7)
Hawaii	213 (1.3)	2 (0.4)	15 (1.0)	54 (1.8)	46 (1.8)
Idaho	220 (1.0)	1 (0.3)	16 (1.1)	64 (1.7)	36 (1.7)
Indiana	220 (1.1)	2 (0.3)	16 (1.1)	62 (1.6)	38 (1.6)
Iowa	229 (1.1)	3 (0.5)	27 (1.3)	74 (1.4)	26 (1.4)
Kentucky	214 (1.0)	1 (0.5)	13 (1.1)	53 (1.5)	47 (1.5)
Louisiana	203 (1.4)	1 (0.2)	8 (0.8)	41 (2.0)	59 (2.0)
Maine	231 (1.0)	3 (0.6)	28 (1.5)	76 (1.3)	24 (1.3)
Maryland	216 (1.3)	3 (0.4)	19 (1.2)	57 (1.6)	43 (1.6)
Massachusetts	226 (1.2)	3 (0.5)	24 (1.5)	70 (1.6)	30 (1.6)
Michigan	219 (1.8)	2 (0.5)	19 (1.7)	62 (2.2)	38 (2.2)
Minnesota	227 (0.9)	3 (0.5)	27 (1.2)	72 (1.4)	28 (1.4)
Mississippi	200 (1.1)	0 (0.1)	7 (0.7)	37 (1.3)	63 (1.3)
Missouri	221 (1.2)	2 (0.3)	19 (1.3)	64 (1.6)	36 (1.6)
Nebraska	224 (1.3)	3 (0.5)	23 (1.7)	68 (1.8)	32 (1.8)
New Hampshire	229 (1.2)	3 (0.6)	26 (1.7)	74 (1.6)	26 (1.6)
New Jersey	226 (1.5)	3 (0.7)	25 (1.6)	70 (2.1)	30 (2.1)
New Mexico	212 (1.5)	1 (0.4)	11 (1.3)	52 (1.9)	48 (1.9)
New York	217 (1.3)	2 (0.3)	17 (1.3)	59 (1.9)	41 (1.9)
North Carolina	211 (1.1)	2 (0.4)	13 (0.9)	52 (1.6)	48 (1.6)
North Dakota	228 (0.8)	2 (0.3)	23 (1.1)	74 (1.2)	26 (1.2)
Ohio	217 (1.2)	2 (0.3)	17 (1.1)	59 (1.7)	41 (1.7)
Oklahoma	219 (1.0)	1 (0.4)	14 (1.1)	62 (1.6)	38 (1.6)
Pennsylvania	223 (1.4)	3 (0.5)	23 (1.5)	66 (1.9)	34 (1.9)
Rhode Island	214 (1.6)	2 (0.4)	14 (1.2)	56 (2.2)	44 (2.2)
South Carolina	211 (1.1)	1 (0.3)	13 (1.1)	49 (1.5)	51 (1.5)
Tennessee	209 (1.4)	1 (0.2)	10 (1.0)	49 (2.1)	51 (2.1)
Texas	217 (1.3)	2 (0.5)	16 (1.3)	58 (1.7)	42 (1.7)
Utah	223 (1.0)	2 (0.3)	20 (1.1)	67 (1.6)	33 (1.6)
Virginia	220 (1.3)	3 (0.7)	19 (1.6)	60 (1.4)	40 (1.4)
West Virginia	214 (1.1)	1 (0.3)	13 (1.0)	54 (1.6)	46 (1.6)
Wisconsin	228 (1.1)	3 (0.5)	25 (1.4)	72 (1.3)	28 (1.3)
Wyoming	224 (1.0)	2 (0.3)	19 (1.2)	70 (1.4)	30 (1.4)
TERRITORY					
Guam	191 (0.8)	0 (0.1)	5 (0.5)	28 (1.2)	72 (1.2)

The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent.

TABLE 4 | Overall Average Mathematics Proficiency and Achievement Levels (continued)

PUBLIC SCHOOLS	Grade 8 - 1992					Grade 8 - 1990				
	Average Proficiency	Percentage of Students At or Above Advanced	Percentage of Students At or Above Proficient	Percentage of Students At or Above Basic	Percentage of Students Below Basic	Average Proficiency	Percentage of Students At or Above Advanced	Percentage of Students At or Above Proficient	Percentage of Students At or Above Basic	Percentage of Students Below Basic
NATION	266 (1.0)	3 (0.5)	23 (1.1)	61 (1.2)	39 (1.2)	262 (1.4)	2 (0.4)	19 (1.2)	57 (1.4)	43 (1.4)
Northeast	267 (3.0)	5 (1.4)	25 (3.0)	59 (3.9)	41 (3.9)	270 (3.3)	3 (1.0)	26 (3.1)	65 (3.7)	35 (3.7)
Southeast	258 (1.2)	1 (0.4)	16 (1.0)	53 (1.6)	47 (1.6)	254 (2.6)	2 (0.6)	15 (2.2)	48 (3.0)	52 (3.0)
Central	273 (2.2)	3 (0.7)	28 (3.0)	70 (2.8)	30 (2.8)	265 (2.3)	2 (0.6)	20 (2.1)	61 (2.5)	39 (2.5)
West	267 (2.1)	4 (1.1)	24 (2.1)	62 (2.7)	38 (2.7)	261 (2.6)	3 (0.7)	19 (2.5)	57 (2.6)	43 (2.6)
STATES										
Alabama	251 (1.7)	1 (0.3)	12 (1.1)	44 (2.0)	56 (2.0)	253 (1.1)	1 (0.2)	12 (0.8)	47 (1.6)	53 (1.6)
Arizona	265 (1.3) >	2 (0.4)	19 (1.4)	61 (1.8) >	39 (1.8) <	260 (1.3)	1 (0.4)	16 (1.1)	55 (1.8)	45 (1.8)
Arkansas	255 (1.2)	1 (0.3)	13 (1.0)	50 (1.7)	50 (1.7)	256 (0.9)	1 (0.2)	12 (1.0)	51 (1.3)	49 (1.3)
California	260 (1.7)	3 (0.7)	20 (1.4)	55 (2.0)	45 (2.0)	256 (1.3)	2 (0.4)	16 (1.3)	51 (1.6)	49 (1.6)
Colorado	272 (1.1) >	2 (0.5)	26 (1.3) >	69 (1.3) >	31 (1.3) <	267 (0.9)	2 (0.4)	22 (1.0)	64 (1.1)	36 (1.1)
Connecticut	273 (1.1) >	4 (0.6)	30 (1.1) >	69 (1.4)	31 (1.4)	270 (1.0)	4 (0.4)	26 (1.1)	66 (1.3)	34 (1.3)
Delaware	262 (1.0)	3 (0.4)	18 (1.1)	57 (1.2)	43 (1.2)	261 (0.9)	2 (0.5)	19 (0.9)	55 (1.3)	45 (1.3)
Dist. Columbia	234 (0.9) >	1 (0.2)	6 (1.0)	26 (1.3) >	74 (1.3) <	231 (0.9)	1 (0.2)	4 (0.7)	21 (1.0)	79 (1.0)
Florida	259 (1.5)	2 (0.4)	18 (1.3)	55 (1.9)	45 (1.9)	255 (1.3)	2 (0.4)	15 (1.0)	49 (1.4)	51 (1.4)
Georgia	259 (1.2)	1 (0.3)	16 (1.0)	53 (1.5)	47 (1.5)	259 (1.3)	3 (0.5)	17 (1.3)	53 (1.5)	47 (1.5)
Hawaii	257 (0.9) »	2 (0.4)	16 (0.8)	51 (1.2) »	49 (1.2) «	251 (0.8)	2 (0.4)	14 (0.8)	45 (1.0)	55 (1.0)
Idaho	274 (0.8) >	3 (0.4)	27 (1.2)	73 (1.1)	27 (1.1)	271 (0.8)	2 (0.4)	23 (1.4)	70 (1.2)	30 (1.2)
Indiana	269 (1.2)	3 (0.4)	24 (1.3)	66 (1.5)	34 (1.5)	267 (1.1)	3 (0.6)	21 (1.2)	63 (1.6)	37 (1.6)
Iowa	283 (1.0) »	5 (0.7)	37 (1.4) >	81 (1.2) >	19 (1.2) <	278 (1.1)	4 (0.5)	30 (1.5)	76 (1.1)	24 (1.1)
Kentucky	261 (1.1) >	2 (0.4)	17 (1.1)	57 (1.3) >	43 (1.3) <	257 (1.2)	1 (0.2)	14 (0.9)	51 (1.8)	49 (1.8)
Louisiana	249 (1.7)	1 (0.2)	10 (1.2)	42 (2.0)	58 (2.0)	246 (1.2)	1 (0.2)	8 (1.0)	39 (1.7)	61 (1.7)
Maine	278 (1.0)	4 (0.6)	31 (1.9)	77 (1.3)	23 (1.3)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	264 (1.3)	4 (0.6)	24 (1.3)	59 (1.5)	41 (1.5)	261 (1.4)	3 (0.6)	20 (1.2)	56 (1.7)	44 (1.7)
Massachusetts	272 (1.1)	3 (0.5)	28 (1.4)	68 (1.5)	32 (1.5)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	267 (1.4)	3 (0.5)	23 (1.7)	63 (1.6)	37 (1.6)	264 (1.2)	2 (0.4)	20 (1.4)	60 (1.4)	40 (1.4)
Minnesota	282 (1.0) »	6 (0.7) >	37 (1.2) »	79 (1.2) >	21 (1.2) <	275 (0.9)	4 (0.4)	29 (1.2)	74 (1.3)	26 (1.3)
Mississippi	246 (1.2)	0 (0.2)	8 (0.8)	38 (1.5)	62 (1.5)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	270 (1.2)	3 (0.4)	24 (1.3)	68 (1.6)	32 (1.6)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	277 (1.1)	4 (0.5)	32 (1.9)	75 (1.2)	25 (1.2)	276 (1.0)	4 (0.6)	30 (1.4)	74 (1.1)	26 (1.1)
New Hampshire	278 (1.0) »	3 (0.6)	30 (1.5) >	77 (1.0) >	23 (1.0) <	273 (0.9)	3 (0.5)	25 (1.2)	71 (1.6)	29 (1.6)
New Jersey	271 (1.6)	4 (0.6)	28 (1.4)	67 (1.8)	33 (1.8)	270 (1.1)	4 (0.5)	25 (1.3)	65 (1.6)	35 (1.6)
New Mexico	259 (0.9) >	1 (0.3)	14 (1.0)	54 (1.4)	46 (1.4)	256 (0.7)	1 (0.3)	13 (0.9)	51 (1.3)	49 (1.3)
New York	266 (2.1)	4 (0.6)	24 (1.6) >	62 (2.3)	38 (2.3)	261 (1.4)	3 (0.5)	19 (1.0)	57 (1.7)	44 (1.7)
North Carolina	258 (1.2) »	1 (0.3)	15 (1.0) >	53 (1.5) »	47 (1.5) «	250 (1.1)	1 (0.4)	11 (0.8)	44 (1.4)	56 (1.4)
North Dakota	283 (1.2)	4 (0.6)	36 (1.7)	82 (1.3)	18 (1.3)	281 (1.2)	4 (0.6)	34 (2.0)	81 (1.6)	19 (1.6)
Ohio	267 (1.5)	2 (0.5)	22 (1.4)	64 (2.0)	36 (2.0)	264 (1.0)	2 (0.3)	19 (1.2)	60 (1.4)	40 (1.4)
Oklahoma	267 (1.2) >	2 (0.3)	21 (1.2) >	65 (2.0)	35 (2.0)	263 (1.3)	2 (0.5)	17 (1.3)	59 (1.6)	41 (1.6)
Pennsylvania	271 (1.5)	3 (0.7)	26 (1.5)	67 (1.7)	33 (1.7)	266 (1.6)	2 (0.4)	21 (1.5)	63 (2.0)	37 (2.0)
Rhode Island	265 (0.7) »	2 (0.3)	20 (1.3)	62 (1.2) »	38 (1.2) «	260 (0.6)	2 (0.3)	18 (1.0)	55 (0.9)	45 (0.9)
South Carolina	260 (1.0)	2 (0.5)	18 (1.1)	53 (1.2)	47 (1.2)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	258 (1.4)	1 (0.4)	15 (1.2)	53 (1.8)	47 (1.8)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	264 (1.3) >	4 (0.6)	21 (1.4) >	58 (1.5) >	42 (1.5) <	258 (1.4)	2 (0.4)	16 (1.0)	52 (1.7)	48 (1.7)
Utah	274 (0.7)	3 (0.5)	27 (1.1)	72 (1.3)	28 (1.3)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	267 (1.2)	3 (0.5)	23 (1.2)	62 (1.6)	38 (1.6)	264 (1.5)	4 (0.8)	21 (1.6)	58 (1.6)	42 (1.6)
West Virginia	258 (1.0)	1 (0.2)	13 (0.9)	53 (1.5)	47 (1.5)	256 (1.0)	1 (0.2)	12 (0.9)	49 (1.2)	51 (1.2)
Wisconsin	277 (1.5)	4 (0.6)	32 (1.4)	76 (1.9)	24 (1.9)	274 (1.3)	4 (0.5)	29 (1.5)	72 (1.7)	28 (1.7)
Wyoming	274 (0.9) >	2 (0.5)	26 (1.0)	73 (1.3)	27 (1.3)	272 (0.7)	2 (0.3)	24 (1.0)	71 (1.3)	29 (1.3)
TERRITORIES										
Guam	234 (1.0) >	1 (0.2)	7 (0.7)	30 (1.4)	70 (1.4)	232 (0.7)	1 (0.2)	5 (0.6)	27 (1.0)	73 (1.0)
Virgin Islands	222 (1.1) >	0 (0.1)	1 (0.3)	13 (1.0)	87 (1.0)	219 (0.9)	0 (0.1)	1 (0.4)	10 (1.1)	90 (1.1)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated. (xxx) Did not participate in the 1990 Trial State Assessment.

Overall Mathematics Performance for the States

FIGURES 1 and 3 provide a method for making appropriate comparisons in overall average mathematics proficiency across the states, the District of Columbia, and territories participating in NAEP's 1992 mathematics assessment. The jurisdictions are listed by overall average mathematics proficiency. To find out how any one jurisdiction performed in comparison to the other jurisdictions, find the name of the state or territory across the top of the chart and read down that column. As can be seen, the pattern for most states is one of having lower average proficiency than some states, about the same average proficiency as some states, and higher average proficiency than some states.

FIGURES 2 and 4 provide visual representations of percentile results for the participating jurisdictions. For example, 25 percent of the students in each state performed below the 25th percentile, and 75 percent performed above the 25th percentile. For the 90th percentile, 10 percent performed above that level and 90 percent below. The dark boxes at the midpoints of the distributions show the 95 percent confidence intervals around the average proficiencies. These intervals take into account the amount of sampling and measurement error associated with the estimates of average proficiency. The results across percentiles show great variation in students' achievement within each state, to the extent that differences within individual states across percentiles tended to exceed the differences in average performance across states.

FIGURE 5 displays the jurisdictions demonstrating increased average mathematics proficiency between 1990 and 1992. These 18 states and territories include: Arizona, Colorado, Connecticut, the District of Columbia, Hawaii, Idaho, Iowa, Kentucky, Minnesota, New Hampshire, New Mexico, North Carolina, Oklahoma, Rhode Island, Texas, Wyoming, Guam, and the Virgin Islands.

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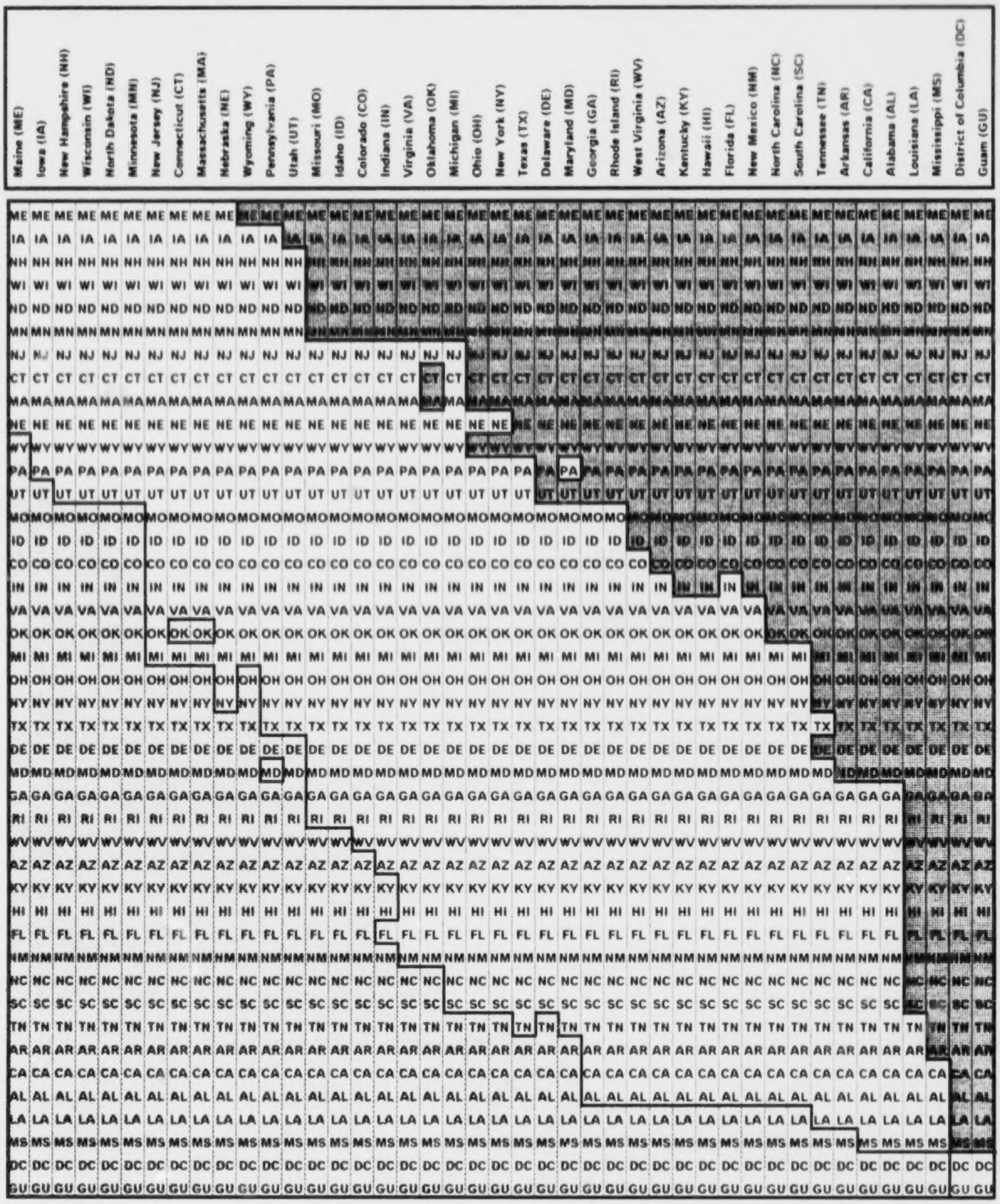
FIGURE 1

Comparisons of Overall Mathematics Average Proficiency 1992 Grade 4

INSTRUCTIONS: Read *down* the column directly under a state name listed in the heading at the top of the chart. Match the shading intensity surrounding a state postal abbreviation to the key below to determine whether the average mathematics performance of this state is higher than, the same as, or lower than the state in the column heading.



▨ State has statistically significantly higher average proficiency than the state listed at the top of the chart.

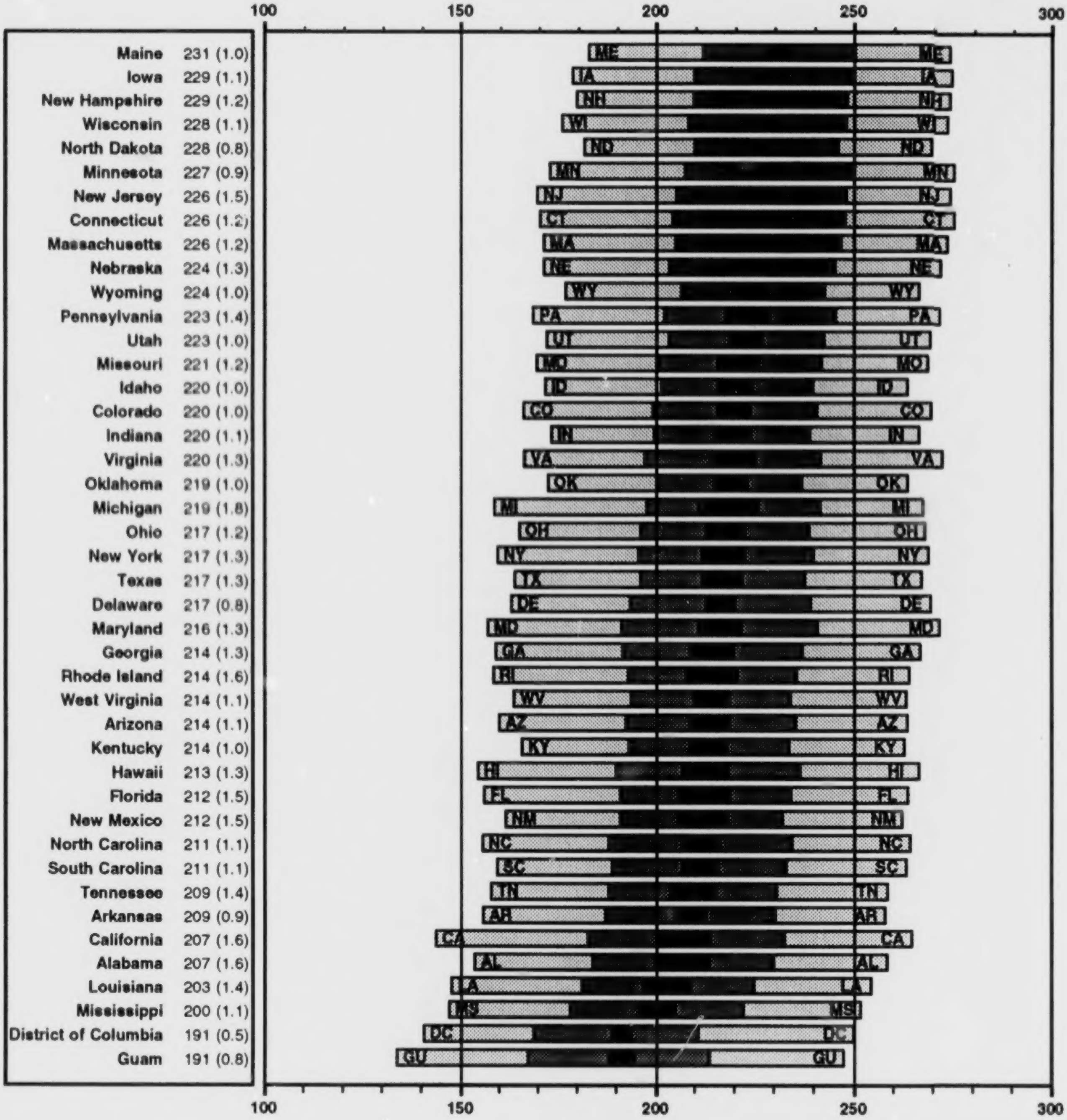
☐ No statistically significant difference from the state listed at the top of the chart.

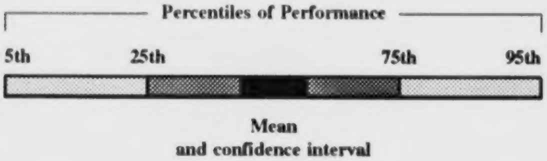
☐ State has statistically significantly lower average proficiency than the state listed at the top of the chart.

The between state comparisons take into account sampling and measurement error and that each state is being compared with every other state. Significance is determined by an application of the Bonferroni procedure based on 946 comparisons by comparing the difference between the two means with four times the square root of the sum of the squared standard errors.

FIGURE 2

Distribution of Overall Mathematics Proficiency Organized by Average Proficiency 1992 Grade 4





The center *darkest* box indicates a simultaneous confidence interval around the average mathematics proficiency for the state based on the Bonferroni procedure for multiple comparisons. Center boxes that do not overlap indicate significant differnces between between states in average mathematics proficiency. The *darker shaded* boxes indicate the ranges between the 25th and 75th percentiles of the mathematics proficiency distribution, and the *lighter shaded* boxes the ranges between the 5th to 25th percentiles and the 75th to 95th percentiles of the distribution.

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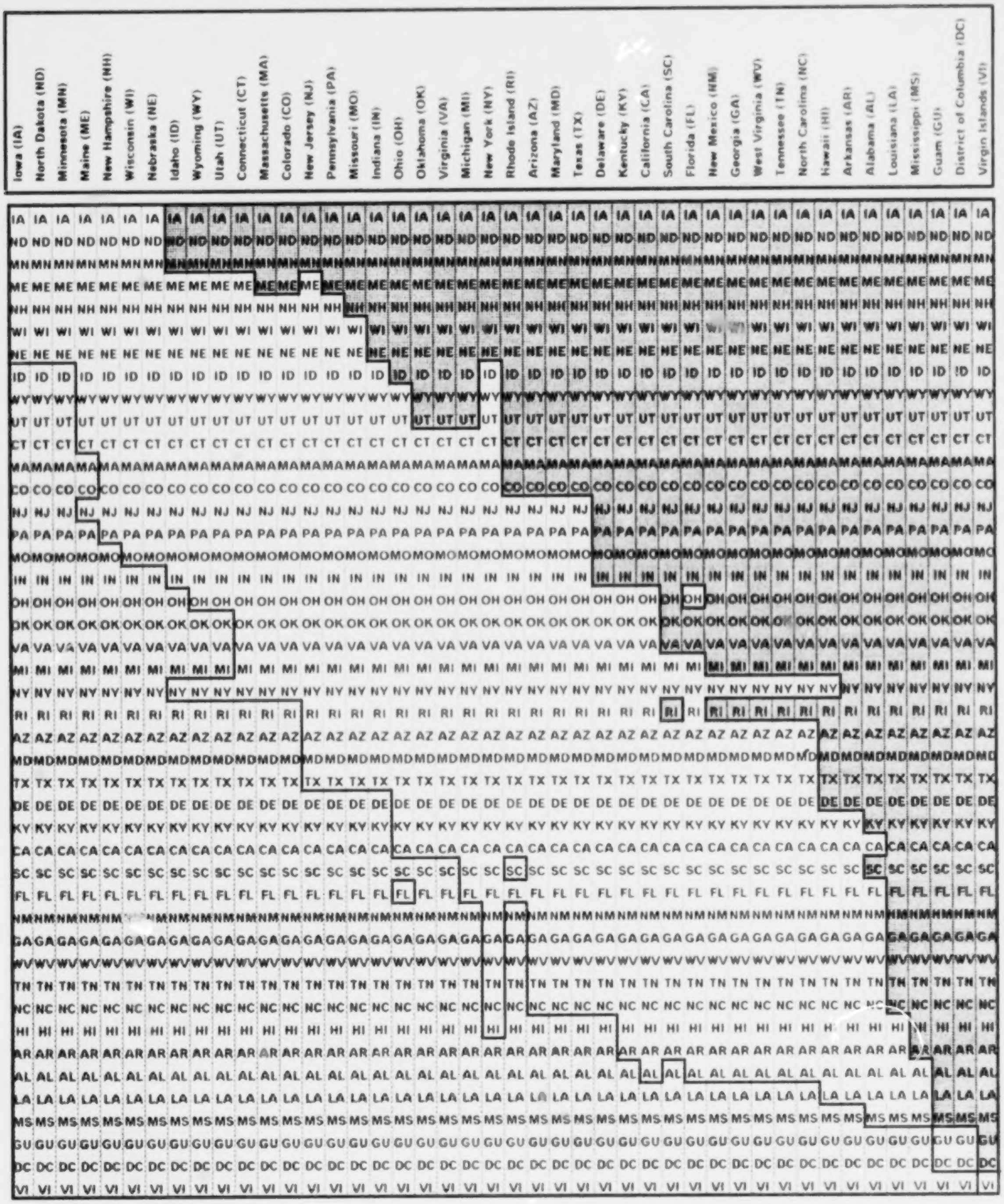
FIGURE 3 | Comparisons of Overall Mathematics Average Proficiency 1992 Grade 8

INSTRUCTIONS: Read *down* the column directly under a state name listed in the heading at the top of the chart. Match the shading intensity surrounding a state postal abbreviation to the key below to determine whether the average mathematics performance of this state is higher than, the same as, or lower than the state in the column heading.


Iowa (IA)
North Dakota (ND)
Minnesota (MN)
Maine (ME)
New Hampshire (NH)
Wisconsin (WI)
Nebraska (NE)
Idaho (ID)
Wyoming (WY)
Utah (UT)
Connecticut (CT)
Massachusetts (MA)
Colorado (CO)
New Jersey (NJ)
Pennsylvania (PA)
Missouri (MO)
Indiana (IN)
Ohio (OH)
Oklahoma (OK)
Virginia (VA)
Michigan (MI)
New York (NY)
Rhode Island (RI)
Arizona (AZ)
Maryland (MD)
Texas (TX)
Delaware (DE)
Kentucky (KY)
California (CA)
South Carolina (SC)
Florida (FL)
New Mexico (NM)
Georgia (GA)
West Virginia (WV)
Tennessee (TN)
North Carolina (NC)
Hawaii (HI)
Arkansas (AR)
Alabama (AL)
Louisiana (LA)
Mississippi (MS)
Guam (GU)
District of Columbia (DC)
Virgin Islands (VI)
IA
ND
MN
ME
NH
WI
NE
ID
WY
UT
CT
MA
CO
NJ
PA
MO
IN
OH
OK
VA
MI
NY
RI
AZ
MD
TX
DE
KY
CA
SC
FL
NM
GA
WV
TN
NC
HI
AR
AL
LA
MS
GU
DC
VI

▨ State has statistically significantly higher average proficiency than the state listed at the top of the chart.

☐ No statistically significant difference from the state listed at the top of the chart.

☐ State has statistically significantly lower average proficiency than the state listed at the top of the chart.

The between state comparisons take into account sampling and measurement error and that each state is being compared with every other state. Significance is determined by an application of the Bonferroni procedure based on 946 comparisons by comparing the difference between the two means with four times the square root of the sum of the squared standard errors.

FIGURE 4

Distribution of Overall Mathematics Proficiency Organized by Average Proficiency
1992 Grade 8

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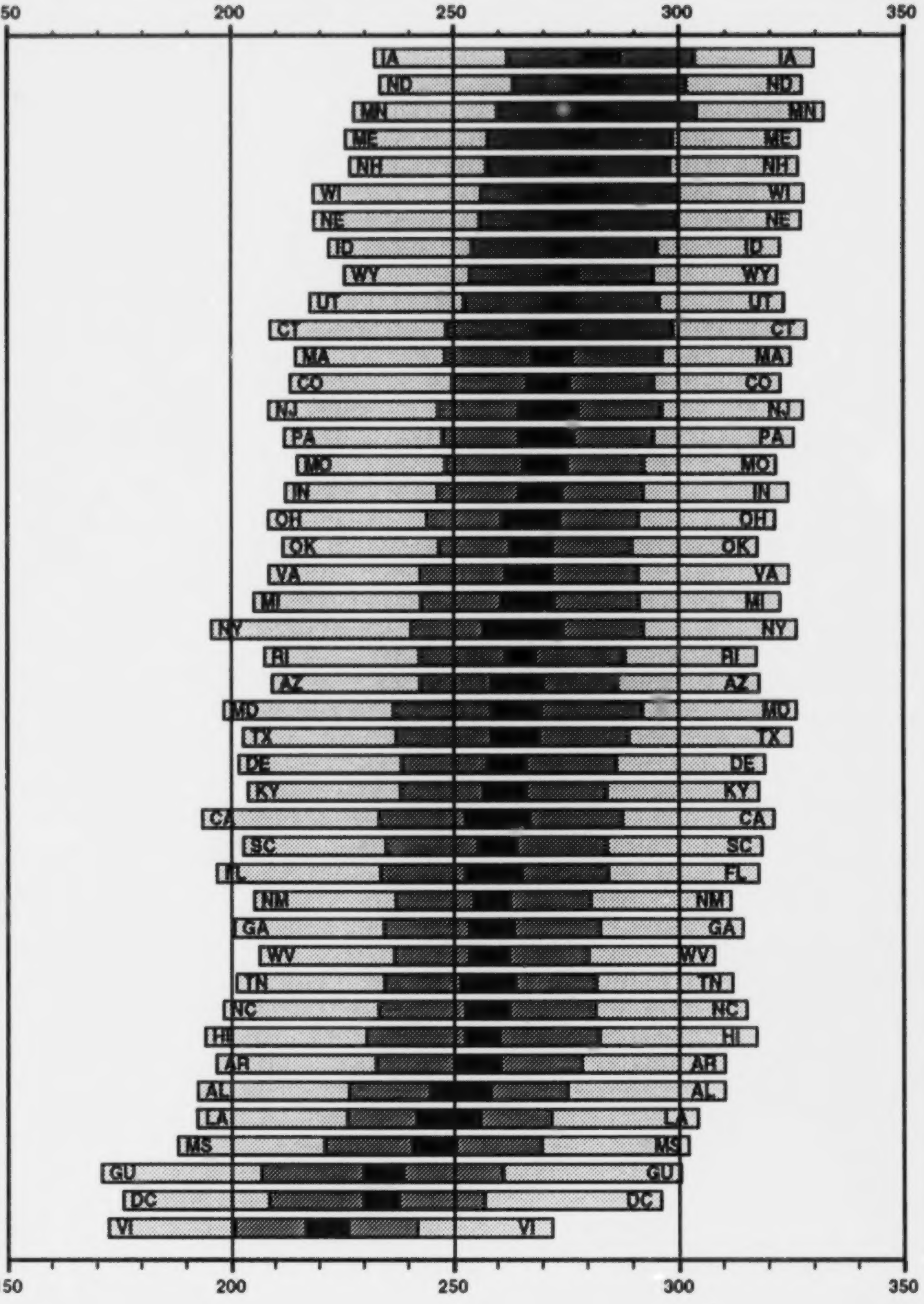
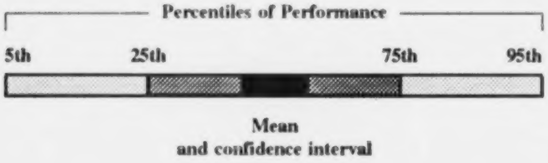
Iowa	283 (1.0)
North Dakota	283 (1.2)
Minnesota	282 (1.0)
Maine	278 (1.0)
New Hampshire	278 (1.0)
Wisconsin	277 (1.5)
Nebraska	277 (1.1)
Idaho	274 (0.8)
Wyoming	274 (0.9)
Utah	274 (0.7)
Connecticut	273 (1.1)
Massachusetts	272 (1.1)
Colorado	272 (1.1)
New Jersey	271 (1.6)
Pennsylvania	271 (1.5)
Missouri	270 (1.2)
Indiana	269 (1.2)
Ohio	267 (1.5)
Oklahoma	267 (1.2)
Virginia	267 (1.2)
Michigan	267 (1.4)
New York	266 (2.1)
Rhode Island	265 (0.7)
Arizona	265 (1.3)
Maryland	264 (1.3)
Texas	264 (1.3)
Delaware	262 (1.0)
Kentucky	261 (1.1)
California	260 (1.7)
South Carolina	260 (1.0)
Florida	259 (1.5)
New Mexico	259 (0.9)
Georgia	259 (1.2)
West Virginia	258 (1.0)
Tennessee	258 (1.4)
North Carolina	258 (1.2)
Hawaii	257 (0.9)
Arkansas	255 (1.2)
Alabama	251 (1.7)
Louisiana	249 (1.7)
Mississippi	246 (1.2)
Guam	234 (1.0)
District of Columbia	234 (0.9)
Virgin Islands	222 (1.1)





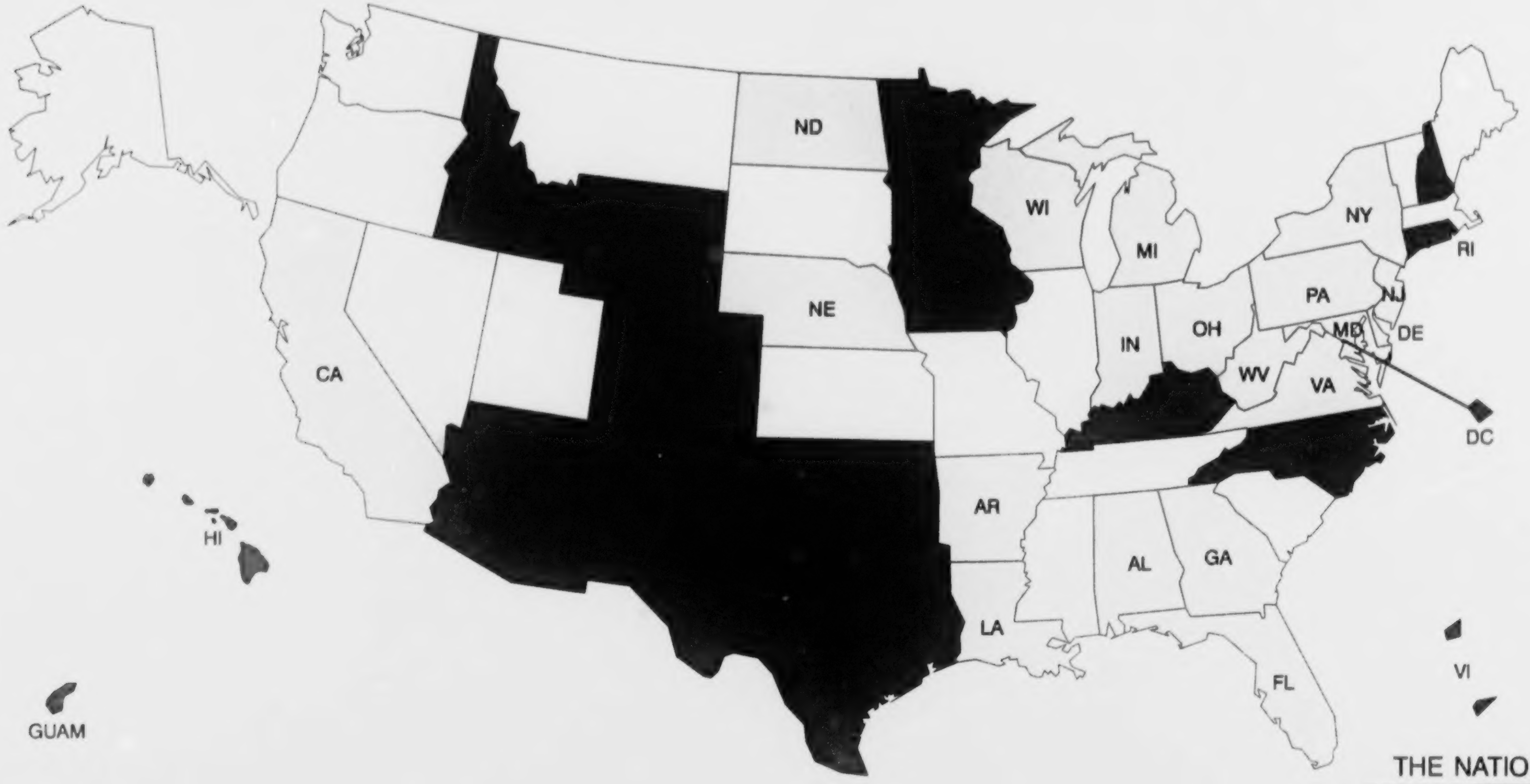
The center *darkest* box indicates a simultaneous confidence interval around the average mathematics proficiency for the state based on the Bonferroni procedure for multiple comparisons. Center boxes that do not overlap indicate significant differnces between between states in average mathematics proficiency. The *darker shaded* boxes indicate the ranges between the 25th and 75th percentiles of the mathematics proficiency distribution, and the *lighter shaded* boxes the ranges between the 5th to 25th percentiles and the 75th to 95th percentiles of the distribution.

Figure 5

The NAEP Trial State Assessment

Comparisons of Overall Mathematics Proficiency at Grade 8

1992 vs. 1990


ND
WI
MI
NY
RI
NE
PA
NJ
MD
DE
CA
IN
OH
WV
VA
DC
AR
HI
AL
GA
LA
FL
VI
GUAM

■ State was significantly higher in 1992 than 1990
□ No statistically significant difference from 1990 to 1992
□ State did not participate in 1990 or 1992
NOTE: No state was significantly lower in 1992 than 1990

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naep
1992
Trial State Assessment

Performance for Demographic Subpopulations

TABLE 5 presents trends in national average proficiency for demographic subpopulations defined by race/ethnicity, gender, type of community, and level of parents' education. The increases between 1990 and 1992 can be seen. However, performance gaps remain between various historically advantaged and disadvantaged groups. TABLE 6 presents average proficiency by race/ethnicity and gender for the states at grades 4 and 8 as well as trends between 1990 and 1992 at grade 8.

A Graphic Illustrating Students' Average Performance Across States

FIGURE 6 is designed to highlight the gradations of mathematics proficiency across the jurisdictions that participated in the 1992 NAEP Trial State Assessment Program. The chart shows those states in the top "quintile," or top 20 percent of performance, looking in particular at the overall average proficiency demonstrated by fourth- and eighth-grade males and females and Black, Hispanic, and White students.

States having average performance in the top 20 percent across participating jurisdictions are indicated by the darkest boxes, with states in successively lower quintiles shown by progressively lighter shadings. The data for the states and territories tend to parallel those for the nation. However, there are differences. Also, in comparison to other participating jurisdictions, some states and territories have certain subpopulations that performed better than others.

For example, West Virginia is in the bottom 20 percent of states in the average mathematics proficiency of White students, but in the top 20 percent in Black students' average proficiency. At the same time, West Virginia is in the next-to-bottom 20 percent for its female students' proficiency and in the middle 20 percent for the proficiency of its male and Hispanic students.

TABLE 5 Average Mathematics Proficiency by Gender, Race/Ethnicity, Type of Community, and Region

	Assessment Years	Grade 4	Grade 8	Grade 12
Male	1992	220(0.8)>	267(1.1)>	301(1.1)>
	1990	214(1.2)	263(1.6)	297(1.4)
Female	1992	217(1.0)>	268(1.0)>	297(1.0)>
	1990	212(1.1)	262(1.3)	292(1.3)
White	1992	227(0.9)>	277(1.0)>	305(0.9)>
	1990	220(1.1)	270(1.4)	300(1.2)
Black	1992	192(1.3)	237(1.4)	275(1.7)>
	1990	189(1.8)	238(2.7)	268(1.9)
Hispanic	1992	201(1.4)	246(1.2)	283(1.8)>
	1990	198(2.0)	244(2.8)	276(2.8)
Asian/Pacific Islander	1992	231(2.4)	288(5.5)	315(3.5)
	1990	228(3.5)	279(4.8)!	311(5.2)
American Indian	1992	209(3.2)	254(2.8)	281(9.0)
	1990	208(3.9)	246(9.4)	288(10.2)!
Advantaged Urban	1992	237(2.1)	288(3.6)	316(2.6)
	1990	231(3.0)	280(3.2)	306(6.2)
Disadvantaged Urban	1992	193(2.8)	238(2.6)<	279(2.4)
	1990	195(3.0)	249(3.8)!	276(6.0)
Extreme Rural	1992	216(3.6)	267(4.6)	293(1.9)
	1990	214(4.9)	257(4.4)	293(3.3)
Other	1992	219(0.9)>	268(1.1)>	300(0.9)>
	1990	213(1.1)	262(1.7)	295(1.3)
Northeast	1992	223(2.0)>	269(2.7)	302(1.5)
	1990	215(2.9)	270(2.8)	300(2.3)
Southeast	1992	210(1.6)>	260(1.4)	291(1.4)>
	1990	205(2.1)	255(2.5)	284(2.2)
Central	1992	223(1.9)>	274(1.9)>	303(1.8)
	1990	216(1.7)	266(2.3)	297(2.6)
West	1992	218(1.5)	268(2.0)>	298(1.7)
	1990	216(2.4)	261(2.6)	294(2.6)

>The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. ! Interpret with caution -- the nature of the sample does not allow accurate determination of the variability of this estimated statistic. The standard errors of the estimated proficiencies appear in parentheses. It can be said with 95 percent confidence for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details).

TABLE 6 | Average Mathematics Proficiency by Gender and Race/Ethnicity

	Grade 4 - 1992						
	Gender		Race/Ethnicity				
	Male	Female	White	Black	Hispanic	Asian / Pacific Islander	American Indian
PUBLIC SCHOOLS	Average Proficiency	Average Proficiency	Average Proficiency	Average Proficiency	Average Proficiency	Average Proficiency	Average Proficiency
NATION	218 (0.9)	216 (1.1)	226 (1.0)	191 (1.4)	199 (1.5)	232 (2.6)	208 (3.5)
Northeast	225 (2.3)	220 (2.9)	232 (2.4)	194 (3.1)	200 (3.2)	*** (***)	*** (***)
Southeast	209 (1.6)	209 (2.7)	219 (2.2)	190 (2.0)	198 (3.4)	*** (***)	*** (***)
Central	224 (2.6)	220 (2.5)	228 (1.8)	192 (4.3)	198 (3.3)	*** (***)	*** (***)
West	217 (1.7)	217 (1.9)	225 (1.8)	188 (2.7)	200 (2.0)	232 (3.2)	*** (***)
STATES							
Alabama	207 (1.8)	207 (1.7)	218 (1.6)	187 (1.1)	192 (4.0)	*** (***)	*** (***)
Arizona	213 (1.3)	214 (1.2)	225 (0.8)	198 (3.6)	202 (1.3)	*** (***)	191 (3.5)
Arkansas	209 (1.1)	208 (1.1)	217 (1.0)	187 (1.7)	193 (2.9)	*** (***)	210 (3.7)
California	208 (1.9)	207 (1.7)	220 (1.8)	182 (3.3)	190 (1.6)	223 (2.7)	207 (6.7)
Colorado	221 (1.2)	219 (1.2)	227 (1.1)	199 (2.9)	205 (1.5)	222 (4.4)	214 (4.5)
Connecticut	227 (1.3)	224 (1.3)	234 (0.9)	193 (2.7)	204 (2.8)	*** (***)	*** (***)
Delaware	218 (1.3)	215 (1.2)	226 (0.9)	196 (1.4)	197 (2.6)	*** (***)	*** (***)
Dist. Columbia	192 (1.0)	191 (0.9)	241 (4.2)	189 (0.7)	181 (2.3)	*** (***)	*** (***)
Florida	214 (1.8)	211 (1.7)	223 (1.4)	189 (2.0)	205 (2.5)	*** (***)	*** (***)
Georgia	214 (1.7)	215 (1.3)	228 (1.2)	195 (1.4)	196 (2.7)	*** (***)	*** (***)
Hawaii	211 (1.7)	214 (1.2)	218 (1.8)	198 (3.3)	197 (2.6)	215 (1.6)	*** (***)
Idaho	222 (1.2)	219 (1.1)	223 (1.0)	*** (***)	202 (2.4)	*** (***)	212 (3.0)
Indiana	221 (1.4)	218 (1.1)	224 (0.9)	194 (2.4)	208 (2.0)	*** (***)	*** (***)
Iowa	229 (1.2)	228 (1.3)	231 (1.0)	193 (3.9)!	218 (2.6)	*** (***)	*** (***)
Kentucky	214 (1.3)	214 (1.1)	216 (1.0)	200 (2.5)	197 (3.0)	*** (***)	*** (***)
Louisiana	203 (1.7)	202 (1.5)	217 (1.5)	186 (1.7)	199 (4.3)	*** (***)	*** (***)
Maine	231 (1.3)	230 (1.3)	232 (1.1)	*** (***)	218 (3.6)	*** (***)	*** (***)
Maryland	218 (1.5)	214 (1.6)	228 (1.2)	193 (1.9)	205 (3.6)	235 (3.8)	*** (***)
Massachusetts	227 (1.4)	224 (1.4)	231 (1.0)	192 (3.1)	205 (2.7)	228 (8.0)	*** (***)
Michigan	221 (1.9)	216 (2.0)	227 (1.5)	184 (3.9)	204 (2.6)	*** (***)	210 (4.0)
Minnesota	228 (1.1)	227 (1.2)	231 (0.9)	192 (3.1)	206 (2.9)	*** (***)	*** (***)
Mississippi	199 (1.3)	201 (1.3)	217 (1.3)	188 (1.3)	184 (2.9)	*** (***)	*** (***)
Missouri	221 (1.5)	221 (1.3)	227 (1.1)	194 (2.2)	206 (3.2)	*** (***)	*** (***)
Nebraska	226 (1.4)	223 (1.6)	228 (1.2)	188 (2.5)	209 (3.2)	*** (***)	*** (***)
New Hampshire	229 (1.5)	228 (1.3)	230 (1.1)	*** (***)	214 (2.7)	*** (***)	*** (***)
New Jersey	227 (1.7)	225 (1.6)	236 (1.3)	197 (2.6)	205 (2.6)	240 (3.0)	*** (***)
New Mexico	212 (1.7)	212 (1.5)	224 (1.5)	201 (3.9)	202 (1.5)	*** (***)	206 (2.9)!
New York	221 (1.3)	214 (1.5)	228 (1.4)	198 (2.7)	198 (2.3)	235 (4.4)!	*** (***)
North Carolina	211 (1.2)	212 (1.3)	222 (1.1)	191 (1.3)	198 (4.2)	*** (***)	202 (4.9)!
North Dakota	229 (1.0)	226 (1.0)	229 (0.8)	*** (***)	213 (3.6)	*** (***)	211 (3.2)!
Ohio	219 (1.2)	216 (1.5)	221 (1.1)	193 (3.0)	206 (3.3)	*** (***)	216 (4.2)
Oklahoma	220 (1.1)	218 (1.3)	223 (1.0)	200 (2.6)	208 (2.5)	*** (***)	211 (2.0)
Pennsylvania	224 (1.6)	222 (1.6)	230 (1.2)	192 (2.5)	203 (2.3)	*** (***)	*** (***)
Rhode Island	215 (1.9)	213 (1.6)	221 (1.3)	189 (3.4)	188 (2.8)	191 (4.3)	*** (***)
South Carolina	211 (1.4)	211 (1.1)	224 (1.2)	193 (1.1)	198 (2.7)	*** (***)	*** (***)
Tennessee	209 (1.5)	210 (1.5)	217 (1.2)	191 (1.9)	191 (4.2)	*** (***)	*** (***)
Texas	218 (1.5)	216 (1.4)	228 (1.7)	197 (2.0)	207 (1.9)	234 (4.5)	*** (***)
Utah	223 (1.2)	223 (1.2)	225 (1.0)	*** (***)	208 (2.2)	*** (***)	*** (***)
Virginia	221 (1.6)	218 (1.4)	228 (1.5)	196 (1.5)	211 (3.4)	236 (4.6)	*** (***)
West Virginia	215 (1.5)	213 (1.1)	215 (1.0)	202 (4.4)	202 (3.0)	*** (***)	*** (***)
Wisconsin	229 (1.4)	226 (1.2)	233 (0.9)	194 (2.9)	211 (3.0)	*** (***)	206 (8.0)!
Wyoming	226 (1.2)	223 (1.1)	227 (0.9)	*** (***)	214 (1.8)	*** (***)	211 (4.0)!
TERRITORY							
Guam	189 (1.3)	194 (1.1)	205 (2.0)	183 (5.4)	179 (2.1)	193 (1.2)	*** (***)

The standard errors of the estimated proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. The percentages for race ethnicity may not add to 100 percent because some students categorized themselves as "other." ***Sample size insufficient to permit reliable estimate. There were fewer than 62 students. ! Interpret with caution - the nature of the sample does not allow accurate determination of the variability of this estimated statistic.

TABLE 6 | Average Mathematics Proficiency by Gender and Race/Ethnicity (continued)

	Grade 8 - 1992						
	Gender		Race/Ethnicity				
	Male	Female	White	Black	Hispanic	Asian / Pacific Islander	American Indian
PUBLIC SCHOOLS	Average Proficiency	Average Proficiency	Average Proficiency	Average Proficiency	Average Proficiency	Average Proficiency	Average Proficiency
NATION	266 (1.2)	267 (1.2)	276 (1.1)	236 (1.3)	245 (1.3)	287 (6.6)	254 (2.9)
Northeast	267 (2.9)	267 (3.6)	279 (3.3)	239 (3.8)	241 (3.8)!	*** (***)	*** (***)
Southeast	257 (1.6)	259 (1.4)	269 (1.2)	233 (1.7)	240 (2.8)!	*** (***)	*** (***)
Central	272 (2.9)	274 (2.4)	280 (2.0)	239 (3.5)	246 (4.2)	*** (***)	*** (***)
West	266 (2.7)	268 (2.2)	277 (2.4)	234 (3.5)	246 (1.6)	286(11.3)	*** (***)
STATES							
Alabama	253 (1.8)	250 (1.9)	264 (1.4)	231 (2.2)	220 (5.3)	*** (***)	*** (***)
Arizona	265 (1.4)	264 (1.4)	275 (1.1)	251 (3.4)	247 (2.7)	*** (***)	251 (2.7)
Arkansas	256 (1.4)	255 (1.3)	265 (1.0)	230 (1.9)	228 (4.1)	*** (***)	*** (***)
California	259 (1.9)	261 (1.9)	276 (1.9)	233 (3.6)	240 (2.0)	276 (2.9)	*** (***)
Colorado	273 (1.2)	270 (1.3)	278 (1.0)	241 (4.4)	254 (1.7)	*** (***)	*** (***)
Connecticut	274 (1.4)	272 (1.3)	283 (0.9)	242 (2.9)	241 (2.4)	287 (8.0)	*** (***)
Delaware	263 (1.4)	261 (1.3)	272 (1.0)	241 (1.8)	239 (3.4)	*** (***)	*** (***)
Dist. Columbia	233 (1.2)	235 (1.4)	*** (***)	233 (0.9)	225 (3.8)	*** (***)	*** (***)
Florida	259 (1.5)	259 (1.8)	273 (1.3)	236 (2.3)	245 (2.5)	*** (***)	*** (***)
Georgia	260 (1.5)	257 (1.2)	270 (1.3)	241 (1.3)	233 (5.5)	*** (***)	*** (***)
Hawaii	254 (1.1)	260 (1.2)	265 (1.6)	*** (***)	238 (2.2)	259 (1.1)	*** (***)
Idaho	276 (1.1)	272 (0.9)	277 (0.8)	*** (***)	253 (2.3)	*** (***)	259 (4.2)
Indiana	272 (1.4)	267 (1.3)	273 (1.2)	243 (2.6)	249 (4.6)	*** (***)	*** (***)
Iowa	284 (1.2)	282 (1.3)	284 (1.0)	*** (***)	261 (3.8)	*** (***)	*** (***)
Kentucky	263 (1.4)	260 (1.4)	264 (1.1)	241 (2.6)	231 (4.6)	*** (***)	*** (***)
Louisiana	251 (1.6)	247 (2.0)	263 (1.7)	232 (2.2)	228 (3.5)	*** (***)	*** (***)
Maine	278 (1.3)	278 (1.2)	279 (1.0)	*** (***)	*** (***)	*** (***)	261 (4.5)
Maryland	265 (1.6)	263 (1.6)	278 (1.5)	239 (2.0)	240 (3.3)	287 (4.7)	*** (***)
Massachusetts	273 (1.5)	271 (1.2)	277 (1.1)	243 (5.0)	240 (3.4)	*** (***)	*** (***)
Michigan	269 (1.6)	264 (1.5)	276 (1.5)	232 (1.8)	248 (4.0)	*** (***)	*** (***)
Minnesota	282 (1.4)	282 (1.1)	284 (1.0)	*** (***)	253 (3.8)	*** (***)	*** (***)
Mississippi	247 (1.6)	244 (1.4)	262 (1.4)	230 (1.4)	223 (3.1)	*** (***)	*** (***)
Missouri	272 (1.5)	269 (1.4)	275 (1.0)	241 (2.9)	251 (4.2)	*** (***)	*** (***)
Nebraska	278 (1.3)	276 (1.4)	281 (1.1)	236 (4.7)	254 (3.1)	*** (***)	*** (***)
New Hampshire	278 (1.3)	277 (1.2)	278 (0.9)	*** (***)	258 (5.1)	*** (***)	*** (***)
New Jersey	275 (1.6)	268 (1.7)	283 (1.4)	242 (2.7)	247 (3.5)	297 (3.3)	*** (***)
New Mexico	261 (1.4)	257 (1.0)	272 (1.2)	*** (***)	248 (1.1)	*** (***)	249 (3.0)
New York	267 (2.4)	265 (2.3)	279 (1.1)	232 (4.5)	243 (4.8)	281 (6.8)	*** (***)
North Carolina	259 (1.4)	257 (1.4)	266 (1.0)	238 (1.7)	238 (4.7)	*** (***)	*** (***)
North Dakota	284 (1.3)	281 (1.4)	284 (1.2)	*** (***)	*** (***)	*** (***)	261 (4.3)!
Ohio	269 (1.8)	266 (1.8)	274 (1.4)	234 (2.3)	245 (4.6)	*** (***)	*** (***)
Oklahoma	269 (1.2)	266 (1.6)	272 (1.0)	238 (3.0)	252 (3.2)	*** (***)	261 (3.2)
Pennsylvania	273 (1.6)	268 (1.7)	276 (1.1)	237 (4.6)	246 (3.9!	*** (***)	*** (***)
Rhode Island	265 (1.0)	265 (1.0)	271 (0.9)	240 (2.9)	232 (2.	264 (3.4)	*** (***)
South Carolina	260 (1.4)	260 (1.0)	273 (1.1)	241 (1.0)	233 (2.	*** (***)	*** (***)
Tennessee	260 (1.7)	256 (1.5)	266 (1.1)	234 (2.4)	227 (4.8)	*** (***)	*** (***)
Texas	266 (1.4)	261 (1.6)	279 (1.6)	243 (2.0)	248 (1.2)	301 (4.9)	*** (***)
Utah	275 (1.0)	272 (1.0)	276 (0.8)	*** (***)	253 (2.3)	*** (***)	*** (***)
Virginia	268 (1.6)	267 (1.2)	275 (1.1)	244 (1.9)	254 (4.0)	280 (4.0)	*** (***)
West Virginia	259 (1.1)	258 (1.2)	260 (1.0)	243 (3.7)	230 (4.9)	*** (***)	*** (***)
Wisconsin	278 (1.8)	277 (1.6)	282 (1.2)	246 (6.8)	246 (4.0)	*** (***)	261 (6.0)!
Wyoming	274 (1.1)	275 (1.2)	277 (0.8)	*** (***)	257 (2.1)	*** (***)	250 (2.4)!
TERRITORIES							
Guam	232 (1.4)	237 (1.5)	266 (5.4)	*** (***)	218 (2.8)	236 (1.1)	*** (***)
Virgin Islands	221 (1.5)	222 (1.4)	*** (***)	224 (1.2)	213 (1.9)	*** (***)	*** (***)

The percentages for race/ethnicity may not add to 100 percent because some students categorized themselves as "other." »The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

FIGURE 6

Average Mathematics Proficiency by Gender and Race/Ethnicity for Five Performance Bands (Quintiles) 1992 Grades 4 and 8

THE NATION'S REPORT CARD

	GRADE 4 GENDER		GRADE 4 RACE/ETHNICITY			GRADE 8 GENDER		GRADE 8 RACE/ETHNICITY		
	Male	Female	White	Black	Hispanic	Male	Female	White	Black	Hispanic
Alabama (AL)	1	1	1	1	1	1	1	1	1	1
Arizona (AZ)	2	▨	▨	■	2	▨	▨	▨	■	■
Arkansas (AR)	1	1	1	1	1	1	1	1	1	1
California (CA)	1	1	2	1	1	2	2	▨	2	▨
Colorado (CO)	▨	■	▨	■	▨	■	■	■	■	■
Connecticut (CT)	■	■	■	▨	▨	■	■	■	■	▨
Delaware (DE)	▨	▨	▨	■	2	2	▨	2	▨	2
District of Columbia (DC)	1	1	■	2	1	1	1	X	2	1
Florida (FL)	2	2	2	2	■	2	2	2	2	▨
Georgia (GA)	2	▨	■	■	1	2	2	2	■	2
Hawaii (HI)	2	2	1	■	2	1	2	1	X	2
Idaho (ID)	■	■	2	X	▨	■	■	■	X	■
Indiana (IN)	■	■	2	▨	■	■	■	▨	■	■
Iowa (IA)	■	■	■	▨	■	■	■	■	X	■
Kentucky (KY)	2	2	1	■	2	2	2	1	▨	2
Louisiana (LA)	1	1	1	1	2	1	1	1	1	1
Massachusetts (MA)	■	■	■	2	▨	■	■	■	■	2
Maryland (MD)	▨	▨	■	▨	■	▨	▨	■	▨	▨
Maine (ME)	■	■	■	X	■	■	■	■	X	X
Michigan (MI)	■	▨	▨	1	▨	■	▨	■	1	■
Minnesota (MN)	■	■	■	2	■	■	■	■	X	■
Mississippi (MS)	1	1	1	1	1	1	1	1	1	1
Missouri (MO)	▨	■	▨	■	■	■	■	▨	■	■
Nebraska (NE)	■	■	■	2	■	■	■	■	2	■
New Hampshire (NH)	■	■	■	X	■	■	■	■	X	■
New Jersey (NJ)	■	■	■	■	▨	■	■	■	■	■
New Mexico (NM)	2	2	▨	■	▨	2	2	2	X	■
New York (NY)	▨	2	■	■	2	▨	▨	■	1	▨
North Carolina (NC)	1	2	2	2	2	1	1	2	▨	2
North Dakota (ND)	■	■	■	X	■	■	■	■	X	X
Ohio (OH)	▨	▨	2	▨	■	▨	▨	▨	2	▨
Oklahoma (OK)	▨	▨	2	■	■	▨	▨	2	▨	■
Pennsylvania (PA)	■	■	■	▨	▨	■	■	▨	▨	▨
Rhode Island (RI)	2	2	2	2	1	▨	▨	2	▨	2
South Carolina (SC)	2	1	▨	▨	2	2	2	2	■	2
Tennessee (TN)	1	1	1	2	1	2	1	1	2	1
Texas (TX)	▨	▨	■	■	■	▨	2	■	■	■
Utah (UT)	■	■	▨	X	■	■	■	▨	X	■
Virginia (VA)	■	▨	■	■	■	▨	■	▨	■	■
West Virginia (WV)	▨	2	1	■	▨	2	2	1	■	2
Wisconsin (WI)	■	■	■	■	■	■	■	■	■	▨
Wyoming (WY)	■	■	▨	X	■	■	■	■	X	■
Guam (GU)	1	1	1	1	1	1	1	2	X	1
Virgin Islands (VI)	NA	NA	NA	NA	NA	1	1	X	1	1

Quintiles of Performance

bottom 20 percent				top 20 percent
1	2	▨	■	■
1st	2nd	3rd	4th	5th

lower ← proficiency → higher

States categorized in the bottom 20 percent of performance have average mathematics proficiencies in the lowest fifth of the average mathematics proficiency distribution of all states and are indicated by the number 1 (first quintile). States with average proficiencies in the top 20 percent of the distribution are indicated by the number 5 (fifth quintile). The numbers 2, 3, and 4 indicate states with average proficiencies in the second, third, and fourth fifths of the distribution.

X Sample size too small (fewer than 62 students) to permit reliable reporting of performance bands (quintiles).

NA Grade 4 data for the Virgin Islands are not available.

What Students Know and Can Do in Mathematics

In contrast to the achievement-level results, based on judgments of how much students *should* know or be able to do, NAEP anchor level results provide descriptions of the types of knowledge, mathematical abilities, and problem-solving skills that students display at particular intervals along NAEP's 0 to 500 point scale. More specifically, the empirically based descriptions are based on what students know and can do at one level that differentiates them from students performing at lower levels. The anchor-level results for the nation as well as for states and territories are shown in TABLES 7 and 8.

Although most students at all three grades demonstrated some success in solving problems involving addition and subtraction, performance began to drop off as the problems required multiplication and division or reasoning in situations involving more than one step or operation. It was estimated that

TABLE 7 National Overall Average Mathematics Proficiency and Anchor Levels, Grades 4, 8, and 12

		Assessment Years	Grade 4	Grade 8	Grade 12
Average Proficiency		1992	218(0.7)>	268(0.9)>	299(0.9)>
		1990	213(0.9)	263(1.3)	294(1.1)
Level	Description		Percentage of Students at or Above		
200	**Addition and Subtraction, and Simple Problem Solving with Whole Numbers**	1992	72(0.9)>	97(0.4)	100(0.1)
		1990	67(1.4)	95(0.7)	100(0.2)
250	**Multiplication and Division, Simple Measurement, and Two-Step Problem Solving**	1992	17(0.8)>	68(1.0)	91(0.5)>
		1990	12(1.1)	65(1.4)	88(0.9)
300	**Reasoning and Problem Solving Involving Fractions, Decimals, Percents, and Elementary Concepts in Geometry, Statistics, and Algebra**	1992	0(0.1)	20(0.9)>	50(1.2)>
		1990	0(0.1)	15(1.0)	45(1.4)
350	**Reasoning and Problem Solving Involving Geometric Relationships, Algebra, and Functions**	1992	0(0.0)	1(0.2)	6(0.5)
		1990	0(0.0)	0(0.2)	5(0.8)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 percent or less were rounded to 0 percent.

TABLE 8 | Overall Average Mathematics Proficiency and Anchor Levels

PUBLIC SCHOOLS	**Grade 4 - 1992**				
	Average Proficiency	**Percentage of Students At or Above Level 200**	**Percentage of Students At or Above Level 250**	**Percentage of Students At or Above Level 300**	**Percentage of Students At or Above Level 350**
NATION	217 (0.8)	71 (1.0)	16 (0.9)	0 (0.1)	0 (0.0)
Northeast	223 (2.1)	75 (2.5)	22 (2.7)	1 (0.3)	0 (0.0)
Southeast	209 (1.9)	61 (2.4)	10 (1.6)	0 (0.2)	0 (0.0)
Central	222 (2.2)	77 (2.9)	19 (2.0)	0 (0.1)	0 (0.0)
West	217 (1.6)	70 (1.9)	15 (2.0)	0 (0.3)	0 (0.0)
STATES					
Alabama	207 (1.6)	58 (2.1)	9 (1.1)	0 (0.0)	0 (0.0)
Arizona	214 (1.1)	68 (1.5)	12 (0.9)	0 (0.1)	0 (0.0)
Arkansas	209 (0.9)	62 (1.4)	9 (0.7)	0 (0.0)	0 (0.0)
California	207 (1.6)	60 (2.0)	11 (1.1)	0 (0.1)	0 (0.0)
Colorado	220 (1.0)	75 (1.2)	17 (1.0)	0 (0.1)	0 (0.0)
Connecticut	226 (1.2)	79 (1.3)	23 (1.4)	1 (0.3)	0 (0.0)
Delaware	217 (0.8)	69 (1.2)	15 (1.0)	0 (0.1)	0 (0.0)
Dist. Columbia	191 (0.5)	37 (1.5)	5 (0.3)	0 (0.1)	0 (0.0)
Florida	212 (1.5)	66 (1.9)	12 (1.2)	0 (0.2)	0 (0.0)
Georgia	214 (1.3)	67 (1.6)	14 (1.1)	0 (0.1)	0 (0.0)
Hawaii	213 (1.3)	65 (1.6)	14 (0.9)	0 (0.1)	0 (0.0)
Idaho	220 (1.0)	77 (1.6)	14 (1.0)	0 (0.1)	0 (0.0)
Indiana	220 (1.1)	75 (1.4)	14 (1.0)	0 (0.1)	0 (0.0)
Iowa	229 (1.1)	84 (1.1)	24 (1.1)	0 (0.1)	0 (0.0)
Kentucky	214 (1.0)	67 (1.4)	12 (1.0)	0 (0.1)	0 (0.0)
Louisiana	203 (1.4)	54 (1.9)	7 (0.8)	0 (0.1)	0 (0.0)
Maine	231 (1.0)	86 (1.0)	26 (1.5)	1 (0.2)	0 (0.0)
Maryland	216 (1.3)	67 (1.5)	17 (1.2)	0 (0.2)	0 (0.0)
Massachusetts	226 (1.2)	80 (1.1)	22 (1.4)	0 (0.2)	0 (0.0)
Michigan	219 (1.8)	73 (2.0)	17 (1.6)	0 (0.2)	0 (0.0)
Minnesota	227 (0.9)	81 (1.2)	24 (1.1)	0 (0.1)	0 (0.0)
Mississippi	200 (1.1)	50 (1.6)	6 (0.6)	0 (0.1)	0 (0.0)
Missouri	221 (1.2)	76 (1.5)	17 (1.2)	0 (0.1)	0 (0.0)
Nebraska	224 (1.3)	78 (1.5)	20 (1.6)	0 (0.2)	0 (0.0)
New Hampshire	229 (1.2)	84 (1.2)	23 (1.6)	0 (0.2)	0 (0.0)
New Jersey	226 (1.5)	80 (1.8)	23 (1.6)	0 (0.2)	0 (0.0)
New Mexico	212 (1.5)	65 (2.1)	10 (1.3)	0 (0.1)	0 (0.0)
New York	217 (1.3)	71 (1.5)	16 (1.3)	0 (0.2)	0 (0.0)
North Carolina	211 (1.1)	64 (1.6)	12 (0.8)	0 (0.1)	0 (0.0)
North Dakota	228 (0.8)	85 (0.9)	21 (1.1)	0 (0.1)	0 (0.0)
Ohio	217 (1.2)	71 (1.5)	15 (1.1)	0 (0.1)	0 (0.0)
Oklahoma	219 (1.0)	76 (1.5)	13 (1.0)	0 (0.1)	0 (0.0)
Pennsylvania	223 (1.4)	77 (1.5)	20 (1.4)	0 (0.2)	0 (0.0)
Rhode Island	214 (1.6)	68 (1.8)	12 (1.1)	0 (0.1)	0 (0.0)
South Carolina	211 (1.1)	63 (1.3)	12 (1.1)	0 (0.1)	0 (0.0)
Tennessee	209 (1.4)	63 (1.9)	9 (1.0)	0 (0.1)	0 (0.0)
Texas	217 (1.3)	71 (1.8)	14 (1.2)	0 (0.1)	0 (0.0)
Utah	223 (1.0)	79 (1.2)	18 (1.0)	0 (0.1)	0 (0.0)
Virginia	220 (1.3)	73 (1.5)	18 (1.6)	1 (0.3)	0 (0.0)
West Virginia	214 (1.1)	68 (1.6)	11 (0.9)	0 (0.1)	0 (0.0)
Wisconsin	228 (1.1)	83 (1.2)	23 (1.4)	0 (0.2)	0 (0.0)
Wyoming	224 (1.0)	82 (1.2)	17 (1.2)	0 (0.1)	0 (0.0)
TERRITORY					
Guam	191 (0.8)	40 (1.2)	4 (0.5)	0 (0.0)	0 (0.0)

The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent.

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TABLE 8 | Overall Average Mathematics Proficiency and Anchor Levels (continued)

	Grade 8 - 1992					Grade 8 - 1990				
PUBLIC SCHOOLS	Average Proficiency	Percentage of Students At or Above Level 200	Percentage of Students At or Above Level 250	Percentage of Students At or Above Level 300	Percentage of Students At or Above Level 350	Average Proficiency	Percentage of Students At or Above Level 200	Percentage of Students At or Above Level 250	Percentage of Students At or Above Level 300	Percentage of Students At or Above Level 350
NATION	266 (1.0)	96 (0.4)	67 (1.1)	18 (0.9)	1 (0.2)	262 (1.4)	95 (0.7)	64 (1.4)	15 (1.1)	1 (0.3)
Northeast	267 (3.0)	96 (0.9)	65 (3.7)	21 (2.3)	1 (0.5)	270 (3.3)	97 (1.0)	72 (3.8)	20 (3.2)	1 (0.5)
Southeast	258 (1.2)	95 (1.0)	58 (1.6)	12 (1.1)	0 (0.1)	254 (2.6)	93 (2.0)	55 (2.9)	11 (2.1)	0 (0.3)
Central	273 (2.2)	98 (0.6)	75 (2.4)	22 (2.6)	1 (0.3)	265 (2.3)	96 (1.3)	68 (2.8)	14 (1.5)	0 (0.4)
West	267 (2.1)	96 (0.6)	68 (2.3)	19 (1.8)	1 (0.4)	261 (2.6)	94 (1.4)	62 (2.5)	14 (2.1)	1 (0.4)
STATES										
Alabama	251 (1.7)	93 (1.2)	51 (2.0)	9 (0.9)	0 (0.1)	253 (1.1)	94 (0.7)	53 (1.5)	9 (0.6)	0 (0.1)
Arizona	265 (1.3) >	97 (0.4)	68 (1.7)	14 (1.1)	0 (0.1)	260 (1.3)	95 (0.7)	62 (1.8)	12 (0.9)	0 (0.2)
Arkansas	255 (1.2)	94 (0.7)	58 (1.6)	9 (0.9)	0 (0.1)	256 (0.9)	95 (0.6)	58 (1.3)	9 (0.7)	0 (0.1)
California	260 (1.7)	93 (0.8)	61 (2.0)	15 (1.3)	1 (0.3)	256 (1.3)	93 (0.6)	57 (1.5)	12 (1.2)	0 (0.2)
Colorado	272 (1.1) >	98 (0.4)	75 (1.2) >	20 (1.1) >	0 (0.2)	267 (0.9)	97 (0.4)	71 (1.1)	16 (1.0)	0 (0.1)
Connecticut	273 (1.1) >	97 (0.7)	74 (1.3)	24 (1.0)	1 (0.1)	270 (1.0)	97 (0.5)	72 (1.3)	21 (1.0)	1 (0.2)
Delaware	262 (1.0)	96 (0.8)	64 (1.3)	14 (0.9)	1 (0.2)	261 (0.9)	95 (0.7)	61 (1.2)	14 (0.8)	1 (0.3)
Dist. Columbia	234 (0.9) >	82 (1.0)	32 (1.3) >	4 (0.9)	0 (0.2)	231 (0.9)	83 (1.1)	26 (1.1)	3 (0.5)	0 (0.2)
Florida	259 (1.5)	94 (0.8)	61 (1.8)	14 (1.1)	0 (0.2)	255 (1.3)	93 (0.7)	56 (1.5)	11 (0.9)	0 (0.1)
Georgia	259 (1.2)	95 (0.6)	60 (1.5)	12 (0.9)	0 (0.2)	259 (1.3)	95 (0.6)	60 (1.4)	13 (1.1)	1 (0.4)
Hawaii	257 (0.9) »	93 (0.7) >	57 (1.2) »	13 (0.7)	0 (0.2)	251 (0.8)	90 (0.7)	51 (1.1)	11 (0.7)	1 (0.1)
Idaho	274 (0.8) >	99 (0.3)	80 (1.0)	20 (1.1)	0 (0.1)	271 (0.8)	99 (0.4)	77 (1.2)	17 (1.1)	0 (0.1)
Indiana	269 (1.2)	98 (0.5)	72 (1.3)	19 (1.2)	1 (0.3)	267 (1.1)	98 (0.4)	70 (1.5)	16 (1.1)	1 (0.2)
Iowa	283 (1.0) »	100 (0.2)	86 (1.1) >	29 (1.3) >	1 (0.3)	278 (1.1)	99 (0.3)	81 (1.1)	24 (1.4)	1 (0.2)
Kentucky	261 (1.1) >	96 (0.6)	64 (1.3) >	13 (1.0)	0 (0.2)	257 (1.2)	96 (0.6)	58 (1.7)	10 (0.8)	0 (0.1)
Louisiana	249 (1.7)	92 (0.9)	50 (1.9)	7 (1.0)	0 (0.1)	246 (1.2)	92 (0.8)	46 (1.8)	5 (0.5)	0 (0.1)
Maine	278 (1.0)	99 (0.4)	83 (1.2)	24 (1.4)	1 (0.2)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	264 (1.3)	95 (0.7)	64 (1.4)	19 (1.2)	1 (0.4)	261 (1.4)	94 (0.7)	61 (1.7)	16 (1.2)	1 (0.2)
Massachusetts	272 (1.1)	98 (0.5)	74 (1.5)	22 (1.3)	1 (0.2)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	267 (1.4)	96 (0.5)	69 (1.5)	18 (1.4)	0 (0.2)	264 (1.2)	97 (0.5)	67 (1.3)	15 (1.1)	1 (0.2)
Minnesota	282 (1.0) »	99 (0.2)	83 (1.1) >	29 (1.2) »	1 (0.3)	275 (0.9)	98 (0.4)	79 (1.0)	22 (1.2)	1 (0.3)
Mississippi	246 (1.2)	90 (0.8)	45 (1.4)	6 (0.7)	0 (0.0)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	270 (1.2)	98 (0.5)	74 (1.6)	18 (1.3)	0 (0.2)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	277 (1.1)	98 (0.3)	81 (1.1)	25 (1.6)	1 (0.2)	276 (1.0)	98 (0.4)	79 (1.1)	23 (1.2)	1 (0.3)
New Hampshire	278 (1.0) »	99 (0.3)	82 (1.0) >	23 (1.3)	1 (0.2)	273 (0.9)	99 (0.4)	78 (1.4)	19 (1.2)	1 (0.2)
New Jersey	271 (1.6)	97 (0.6)	73 (1.8)	22 (1.4)	1 (0.3)	270 (1.1)	98 (0.6)	71 (1.4)	20 (1.1)	1 (0.2)
New Mexico	259 (0.9) >	96 (0.6)	61 (1.3)	10 (0.8)	0 (0.1)	256 (0.7)	96 (0.5)	57 (1.2)	10 (0.9)	0 (0.2)
New York	266 (2.1)	94 (1.2)	68 (2.3)	19 (1.2) >	1 (0.2)	261 (1.4)	94 (0.9)	63 (1.6)	15 (0.9)	1 (0.3)
North Carolina	258 (1.2) »	95 (0.6) >	59 (1.4) »	11 (0.9) >	0 (0.1)	250 (1.1)	92 (0.7)	51 (1.4)	8 (0.7)	0 (0.1)
North Dakota	283 (1.2)	100 (0.2)	87 (1.1)	28 (1.6)	0 (0.2)	281 (1.2)	99 (0.3)	86 (1.4)	26 (1.8)	1 (0.4)
Ohio	267 (1.5)	97 (0.5)	70 (1.7)	17 (1.3)	0 (0.2)	264 (1.0)	97 (0.4)	66 (1.3)	14 (1.0)	0 (0.1)
Oklahoma	267 (1.2) >	97 (0.4)	72 (1.6) >	16 (1.2)	0 (0.1)	263 (1.3)	97 (0.5)	66 (1.5)	13 (1.1)	0 (0.2)
Pennsylvania	271 (1.5)	98 (0.6)	73 (1.6)	20 (1.4)	0 (0.2)	266 (1.6)	97 (0.6)	69 (2.0)	16 (1.3)	1 (0.2)
Rhode Island	265 (0.7) »	97 (0.4) >	68 (1.2) »	15 (0.9)	0 (0.2)	260 (0.6)	95 (0.5)	61 (0.7)	14 (0.7)	0 (0.2)
South Carolina	260 (1.0)	96 (0.6)	60 (1.2)	14 (1.0)	0 (0.1)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	258 (1.4)	95 (0.6)	59 (1.8)	11 (1.0)	0 (0.1)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	264 (1.3) >	96 (0.4)	64 (1.5)	17 (1.2) >	1 (0.3)	258 (1.4)	95 (0.8)	59 (1.6)	12 (1.1)	0 (0.2)
Utah	274 (0.7)	99 (0.3)	78 (1.1)	21 (1.1)	0 (0.2)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	267 (1.2)	97 (0.3)	68 (1.4)	18 (1.0)	1 (0.2)	264 (1.5)	97 (0.5)	64 (1.5)	17 (1.5)	1 (0.4)
West Virginia	258 (1.0)	97 (0.5)	60 (1.6)	9 (0.8)	0 (0.0)	256 (1.0)	96 (0.6)	57 (1.4)	9 (0.8)	0 (0.1)
Wisconsin	277 (1.5)	98 (0.4)	80 (1.8)	26 (1.3)	1 (0.2)	274 (1.3)	99 (0.4)	78 (1.5)	22 (1.4)	1 (0.2)
Wyoming	274 (0.9) >	99 (0.3)	79 (1.1)	19 (0.9)	0 (0.2)	272 (0.7)	99 (0.2)	78 (1.0)	18 (0.9)	0 (0.1)
TERRITORIES										
Guam	234 (1.0) >	80 (1.1)	34 (1.4)	5 (0.6)	0 (0.1)	232 (0.7)	79 (1.0)	32 (1.2)	4 (0.3)	0 (0.1)
Virgin Islands	222 (1.1) >	76 (1.7)	18 (1.4)	1 (0.3)	0 (0.0)	219 (0.9)	74 (1.3)	14 (1.0)	1 (0.3)	0 (0.0)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated. (xxx) Did not participate in the 1990 Trial State Assessment.

even fewer students -- one-fifth at grade 8 and one-half at grade 12 -- had success with fractions, decimals, and percents or elementary geometry and algebra. Few students (an estimated 6 percent) at grade 12 consistently solved relatively complex problems involving geometric relationships, algebra, or functions.

TABLE 9 presents average performance across the five content areas included in the assessment, as well as for the special estimation section. TABLE 10 displays comparable information for the participating states and territories. The increases in average proficiency in algebra and functions across the nation and the states are consistent with recommendations included in the *NCTM Standards* to place more emphasis on algebra in school mathematics. FIGURE 7 shows the average proficiency in 20 percent bands or quintiles of state performance across the mathematics content areas. Students in Iowa, Maine, Minnesota, New Hampshire, North Dakota, and Wisconsin had average proficiency in the top 20 percent of participating jurisdictions across all mathematics content areas at both grades 4 and 8.

TABLE 9 Average Proficiency in Mathematics Content Areas, Grades 4, 8, and 12

Grade	Years	Average Proficiency	Numbers and Operations	Measurement	Geometry	Data Analysis, Statistics, and Probability	Algebra and Functions	Estimation
4	**1992**	218(0.7)>	216(0.8)>	224(0.8)>	221(0.7)>	219(0.9)	217(0.9)>	208(1.5)>
	1990	213(0.9)	210(1.1)	218(1.0)	213(0.9)	--	214(0.9)	200(1.5)
8	**1992**	268(0.9)>	272(0.8)>	266(1.2)>	263(0.9)>	268(1.1)>	267(1.0)>	271(1.3)
	1990	263(1.3)	267(1.3)	259(1.6)	260(1.3)	263(1.6)	261(1.2)	269(1.2)
12	**1992**	299(0.9)>	298(0.9)>	297(0.9)>	300(1.0)>	298(1.0)>	300(1.0)>	294(1.2)
	1990	294(1.1)	293(1.1)	292(1.3)	295(1.3)	294(1.2)	296(1.2)	292(1.2)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details).

TABLE 10 | Average Proficiency in Mathematics Content Areas

PUBLIC SCHOOLS	Grade 4 - 1992					
	Numbers and Operations	Measurement	Geometry	Data Analysis, Statistics, and Probability	Algebra and Functions	Estimation
NATION	214 (0.9)	222 (0.9)	220 (0.7)	218 (1.0)	216 (0.9)	206 (1.8)
Northeast	220 (2.2)	227 (2.3)	224 (2.2)	223 (2.3)	222 (2.2)	205 (6.8)!
Southeast	205 (2.0)	214 (2.1)	212 (1.6)	210 (2.2)	206 (2.2)	195 (3.9)
Central	219 (2.3)	228 (2.4)	224 (2.0)	223 (2.3)	220 (2.1)	212 (4.3)
West	214 (1.8)	221 (1.6)	222 (1.3)	217 (1.9)	215 (1.9)	213 (3.5)
STATES						
Alabama	204 (1.8)	213 (1.7)	209 (1.4)	209 (1.7)	204 (1.8)	198 (1.9)
Arizona	210 (1.4)	219 (1.3)	219 (1.0)	214 (1.3)	213 (1.6)	205 (1.4)
Arkansas	205 (1.1)	215 (1.7)	212 (1.3)	211 (1.3)	206 (1.0)	197 (1.6)
California	204 (1.8)	210 (1.8)	213 (1.6)	206 (1.6)	208 (2.0)	202 (1.8)
Colorado	216 (1.1)	225 (1.2)	227 (1.0)	220 (1.2)	217 (1.3)	212 (1.2)
Connecticut	223 (1.3)	230 (1.2)	230 (1.3)	225 (1.7)	225 (1.4)	217 (1.4)
Delaware	214 (0.9)	220 (0.9)	219 (0.9)	219 (1.4)	215 (1.3)	203 (1.5)
Dist. Columbia	189 (0.7)	193 (0.9)	198 (0.9)	189 (0.9)	191 (0.7)	171 (1.0)
Florida	208 (1.6)	219 (1.8)	215 (1.2)	214 (1.5)	211 (2.3)	200 (1.9)
Georgia	211 (1.3)	219 (1.5)	216 (1.2)	218 (1.3)	213 (2.4)	199 (1.5)
Hawaii	211 (1.4)	216 (1.7)	218 (1.2)	212 (1.5)	210 (1.7)	199 (1.7)
Idaho	216 (1.3)	227 (1.0)	226 (1.1)	219 (1.0)	217 (1.2)	211 (1.2)
Indiana	216 (1.3)	226 (1.4)	223 (1.2)	222 (1.3)	218 (1.9)	210 (1.6)
Iowa	227 (1.3)	234 (1.4)	229 (1.0)	230 (1.0)	226 (1.4)	221 (1.4)
Kentucky	211 (1.2)	218 (1.1)	215 (1.1)	215 (1.4)	212 (1.5)	205 (1.3)
Louisiana	199 (1.5)	208 (1.6)	206 (1.7)	204 (1.8)	201 (2.0)	188 (1.7)
Maine	227 (1.4)	236 (1.4)	236 (0.9)	231 (1.3)	228 (1.8)	220 (1.5)
Maryland	214 (1.4)	220 (1.7)	219 (1.2)	217 (1.5)	215 (1.4)	200 (1.5)
Massachusetts	224 (1.2)	229 (1.6)	229 (1.2)	225 (1.5)	222 (1.4)	217 (1.4)
Michigan	215 (1.9)	225 (2.0)	222 (1.7)	218 (1.8)	216 (2.2)	209 (2.2)
Minnesota	225 (1.2)	233 (1.3)	230 (0.9)	227 (1.2)	225 (1.1)	223 (1.4)
Mississippi	198 (1.3)	206 (1.5)	202 (1.0)	199 (1.5)	195 (1.3)	188 (1.6)
Missouri	217 (1.4)	226 (1.7)	224 (1.1)	223 (1.4)	220 (1.3)	211 (1.7)
Nebraska	221 (1.5)	230 (1.5)	229 (1.2)	225 (1.7)	220 (1.7)	216 (1.5)
New Hampshire	225 (1.3)	234 (1.5)	233 (1.2)	229 (1.6)	227 (1.5)	222 (1.5)
New Jersey	225 (1.6)	230 (1.9)	226 (1.4)	225 (1.6)	224 (2.0)	213 (1.9)
New Mexico	207 (1.8)	216 (1.6)	219 (1.2)	214 (1.6)	210 (2.0)	203 (1.8)
New York	215 (1.4)	221 (1.7)	218 (1.2)	221 (1.6)	215 (1.7)	204 (1.8)
North Carolina	208 (1.3)	216 (1.3)	215 (1.6)	214 (1.3)	210 (1.4)	198 (1.4)
North Dakota	224 (0.9)	235 (1.3)	229 (1.0)	229 (1.3)	225 (1.2)	222 (1.3)
Ohio	214 (1.4)	223 (1.6)	221 (1.3)	218 (1.4)	216 (1.4)	210 (1.4)
Oklahoma	216 (1.1)	224 (1.3)	220 (1.1)	221 (1.5)	217 (1.5)	211 (1.4)
Pennsylvania	221 (1.6)	229 (1.6)	223 (1.2)	223 (1.5)	221 (1.4)	212 (1.6)
Rhode Island	212 (1.7)	218 (1.8)	216 (1.6)	213 (1.6)	212 (1.9)	206 (1.8)
South Carolina	208 (1.2)	218 (1.6)	215 (1.1)	211 (1.4)	207 (1.5)	195 (1.5)
Tennessee	207 (1.5)	213 (1.4)	211 (1.6)	211 (1.6)	209 (1.7)	200 (1.5)
Texas	214 (1.4)	220 (1.6)	220 (1.4)	218 (1.4)	216 (1.4)	199 (1.7)
Utah	219 (1.2)	229 (1.1)	227 (0.9)	221 (1.3)	221 (1.1)	213 (1.0)
Virginia	217 (1.6)	224 (1.5)	222 (1.3)	223 (1.3)	217 (1.6)	206 (1.5)
West Virginia	210 (1.2)	223 (1.3)	217 (1.0)	214 (1.2)	211 (1.4)	204 (1.4)
Wisconsin	225 (1.3)	234 (1.2)	228 (1.2)	229 (1.2)	225 (1.4)	219 (1.7)
Wyoming	221 (1.1)	230 (1.2)	228 (1.1)	224 (1.1)	222 (1.2)	216 (1.1)
TERRITORY						
Guam	188 (1.1)	192 (1.1)	201 (1.2)	189 (0.9)	192 (1.0)	173 (0.8)

The standard errors of the estimated proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. ! Interpret with caution - the nature of the sample does not allow accurate determination of the variability of this estimated statistic.

TABLE 10 | Average Proficiency in Mathematics Content Areas (continued)

PUBLIC SCHOOLS	Grade 8 - 1992						Grade 8 - 1990				
	Numbers and Operations	Measurement	Geometry	Data Analysis, Statistics, and Probability	Algebra and Functions	Estimation	Numbers and Operations	Measurement	Geometry	Data Analysis, Statistics, and Probability	Algebra and Functions
NATION	270 (0.9)	264 (1.3)	262 (1.0)	267 (1.2)	266 (1.1)	269 (1.5)	266 (1.3)	258 (1.6)	259 (1.4)	262 (1.6)	260 (1.3)
Northeast	271 (2.7)	265 (3.9)	263 (3.1)	269 (3.5)	266 (2.8)	269 (5.1)	272 (2.9)	267 (4.2)	268 (3.3)	273 (3.9)	268 (3.3)
Southeast	263 (1.2)	253 (1.6)	253 (1.3)	258 (1.7)	259 (1.3)	264 (2.6)	260 (2.8)	248 (2.9)	251 (2.8)	253 (3.2)	256 (2.4)
Central	277 (2.2)	272 (2.7)	269 (2.1)	274 (2.5)	272 (2.5)	274 (2.6)	270 (2.0)	262 (3.0)	261 (2.7)	265 (2.6)	262 (2.4)
West	270 (1.8)	266 (2.8)	263 (2.2)	267 (2.4)	266 (2.6)	270 (2.0)	263 (2.5)	257 (3.2)	260 (2.6)	261 (3.2)	259 (2.6)
STATES											
Alabama	258 (1.4)	245 (2.3)	245 (1.9)	250 (2.1)	253 (1.9)	260 (1.1)	259 (1.1)	248 (1.4)	249 (1.3)	251 (1.5)	252 (1.3)
Arizona	269 (1.2)	264 (2.3)	260 (1.0)	265 (1.7)	264 (1.5) >	269 (1.1)	265 (1.3)	257 (1.6)	256 (1.3)	259 (1.9)	258 (1.5)
Arkansas	262 (1.3)	251 (1.3)	250 (1.5)	254 (1.5)	255 (1.5)	263 (1.3)	262 (0.8)	254 (1.3)	253 (0.9)	255 (1.1)	253 (1.1)
California	263 (1.7)	258 (2.1) >	259 (1.9)	258 (2.2)	258 (2.2)	263 (1.4)	260 (1.3)	252 (1.4)	256 (1.3)	255 (1.6)	256 (1.3)
Colorado	273 (1.1) >	273 (1.6) »	269 (1.1)	274 (1.4)	270 (1.1) >	273 (0.9)	269 (1.0)	265 (1.2)	266 (1.1)	270 (1.1)	266 (1.0)
Connecticut	277 (1.3)	275 (1.6) >	268 (1.0)	274 (1.5)	270 (1.4)	275 (1.1)	274 (1.0)	268 (1.6)	266 (1.1)	271 (1.5)	268 (1.5)
Delaware	267 (1.0)	258 (1.5)	257 (1.1)	262 (1.3)	263 (1.3)	264 (0.9)	265 (0.9)	259 (1.2)	256 (1.1)	262 (1.5)	259 (1.0)
Dist. Columbia	243 (0.8) >	221 (1.6)	231 (1.3)	229 (1.2) >	237 (1.1)	241 (0.8)	239 (0.9)	222 (1.4)	229 (1.1)	223 (1.4)	235 (1.1)
Florida	264 (1.4)	254 (2.1)	255 (1.3)	259 (1.8)	260 (1.6)	264 (1.1)	260 (1.2)	252 (1.5)	251 (1.3)	255 (1.7)	255 (1.5)
Georgia	265 (1.1)	253 (2.1)	253 (1.4)	259 (1.6)	259 (1.4)	263 (0.9)	263 (1.3)	253 (1.5)	257 (1.4)	260 (1.6)	257 (1.5)
Hawaii	261 (0.9) »	254 (1.0) >	257 (1.2) >	249 (1.5) >	256 (1.1) »	260 (0.8)	257 (0.7)	249 (0.9)	252 (0.7)	243 (1.1)	249 (1.0)
Idaho	277 (0.8)	276 (1.4) >	271 (0.9)	274 (1.1)	274 (0.9) >	274 (0.6)	275 (0.8)	269 (1.1)	269 (1.1)	273 (0.8)	270 (0.9)
Indiana	272 (1.3)	269 (1.7)	266 (1.2)	273 (1.5)	267 (1.3)	271 (0.9)	271 (1.1)	265 (2.0)	264 (1.2)	269 (1.3)	265 (1.2)
Iowa	285 (1.0)	287 (1.6) »	278 (1.2)	285 (1.4)	280 (1.2) >	282 (0.9)	282 (1.0)	276 (1.6)	274 (1.3)	280 (1.2)	275 (1.2)
Kentucky	266 (1.1) >	259 (1.3) >	256 (1.1)	262 (1.8)	260 (1.4)	266 (0.9)	261 (1.2)	254 (1.2)	253 (1.3)	258 (1.3)	257 (1.3)
Louisiana	256 (1.6)	242 (2.0)	244 (1.7)	248 (1.9)	249 (1.9)	258 (1.4)	253 (1.2)	241 (1.4)	243 (1.3)	243 (1.6)	246 (1.5)
Maine	280 (1.2)	282 (1.5)	274 (0.9)	282 (1.4)	274 (1.2)	275 (1.0)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	269 (1.3)	261 (1.7)	259 (1.3)	266 (1.4)	264 (1.6)	264 (1.1)	264 (1.3)	256 (1.7)	257 (1.5)	261 (1.7)	262 (1.6)
Massachusetts	276 (1.0)	270 (1.5)	267 (1.1)	274 (1.5)	271 (1.4)	275 (0.9)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	270 (1.3)	266 (2.0)	261 (1.5)	268 (1.4)	267 (1.6)	268 (1.2)	269 (1.2)	261 (1.5)	261 (1.2)	265 (1.7)	264 (1.3)
Minnesota	282 (1.1)	285 (1.5) »	278 (1.1) >	284 (1.4) >	281 (1.1) »	284 (0.8)	279 (1.1)	272 (1.2)	272 (1.0)	279 (1.1)	274 (1.1)
Mississippi	256 (1.2)	236 (2.1)	239 (1.2)	243 (1.8)	245 (1.6)	259 (1.0)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	272 (1.3)	271 (1.8)	266 (1.3)	272 (1.6)	270 (1.4)	271 (1.1)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	279 (1.1)	278 (1.7)	274 (1.3)	278 (1.7)	275 (1.5)	277 (1.0)	279 (1.0)	273 (1.6)	273 (1.2)	278 (1.1)	273 (1.0)
New Hampshire	280 (0.9) »	280 (1.9) >	273 (1.0)	281 (1.4) >	274 (1.0)	277 (0.9)	275 (0.9)	272 (1.6)	271 (1.0)	275 (1.2)	272 (1.0)
New Jersey	276 (1.6)	268 (2.2)	265 (1.7)	271 (2.1)	272 (1.8)	274 (1.3)	274 (1.2)	267 (1.4)	266 (1.2)	270 (1.4)	268 (1.4)
New Mexico	263 (1.0) >	257 (1.5)	256 (0.9)	258 (1.4)	257 (1.1)	265 (1.0)	259 (0.8)	254 (1.0)	257 (0.7)	253 (1.3)	257 (0.9)
New York	270 (1.9) >	262 (2.5)	261 (2.4)	268 (2.9)	265 (2.4)	266 (1.8)	264 (1.3)	255 (2.1)	260 (1.5)	263 (1.7)	260 (1.4)
North Carolina	261 (1.3) >	253 (1.8) »	254 (1.4) >	258 (1.4) »	259 (1.5) »	263 (1.0)	256 (1.1)	242 (1.3)	249 (1.1)	248 (1.6)	251 (1.2
North Dakota	286 (1.2)	285 (1.9)	277 (1.3)	286 (1.4)	279 (1.2)	283 (1.0)	286 (1.3)	279 (1.6)	278 (1.3)	285 (1.6)	275 (1.2)
Ohio	272 (1.5)	266 (2.3)	262 (1.3)	270 (2.1)	267 (1.8)	269 (1.1)	269 (1.1)	259 (1.3)	260 (1.1)	266 (1.1)	262 (1.0)
Oklahoma	271 (1.3)	266 (2.3) >	262 (1.3)	269 (1.5)	267 (1.3)	271 (0.9)	268 (1.3)	258 (1.6)	260 (1.4)	264 (2.1)	262 (1.3)
Pennsylvania	274 (1.6)	271 (2.0)	265 (1.5)	273 (1.8)	270 (1.5)	272 (1.3)	270 (1.7)	264 (2.0)	263 (1.7)	268 (1.9)	265 (1.6)
Rhode Island	269 (0.7) »	263 (1.1) »	259 (0.8) >	266 (1.2) »	266 (1.3) >	269 (0.7)	264 (0.6)	257 (0.7)	256 (0.9)	259 (0.7)	261 (0.9
South Carolina	265 (1.0)	257 (1.6)	256 (1.2)	258 (1.4)	259 (1.3)	264 (0.9)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	264 (1.3)	253 (2.0)	252 (1.5)	259 (1.6)	257 (1.7)	264 (1.4)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	267 (1.4)	260 (1.7) >	262 (1.5)	263 (1.6)	266 (1.4) »	267 (0.9)	262 (1.3)	254 (1.5)	258 (1.4)	257 (1.8)	256 (1.6)
Utah	276 (0.8)	275 (1.3)	269 (1.2)	275 (1.1)	272 (1.0)	274 (0.7)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	272 (1.1)	265 (1.7)	261 (1.3)	268 (1.4)	267 (1.4)	271 (1.1)	268 (1.4)	260 (1.8)	261 (1.6)	264 (1.9)	265 (1.6)
West Virginia	263 (1.0)	256 (1.6)	254 (1.1)	260 (1.2)	257 (1.3)	263 (0.8)	260 (1.0)	253 (1.2)	254 (1.0)	256 (1.6)	254 (1.1)
Wisconsin	280 (1.5)	279 (2.0)	272 (1.6)	280 (2.1)	275 (1.6)	278 (1.1)	278 (1.4)	273 (1.6)	272 (1.5)	277 (1.4)	271 (1.2)
Wyoming	276 (0.8)	278 (1.2) »	272 (0.7)	275 (1.3)	271 (1.2)	276 (0.9)	275 (0.7)	270 (0.8)	270 (0.7)	273 (1.0)	270 (0.8)
TERRITORIES											
Guam	240 (1.3)	228 (1.6)	239 (1.4)	221 (1.9) >	235 (1.1) >	244 (1.1)	240 (0.7)	229 (1.3)	236 (1.1)	214 (1.2)	230 (1.0)
Virgin Islands	231 (1.0)	211 (1.7)	222 (0.8)	214 (2.5) »	221 (1.2)	231 (1.5)	229 (1.0)	216 (2.0)	223 (1.3)	196 (2.0)	219 (1.5)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

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FIGURE 7

Average Proficiency by Mathematics Subscales for Five Performance Bands (Quintiles) 1992 Grades 4 and 8

	GRADE 4							GRADE 8						
	Overall	Numbers and Operations	Measurement	Geometry	Data Analysis, Statistics, and Probability	Algebra and Functions	Estimation	Overall	Numbers and Operations	Measurement	Geometry	Data Analysis, Statistics, and Probability	Algebra and Functions	Estimation
Alabama (AL)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Arizona (AZ)	2	2	2	3	2	2	3	3	3	3	3	3	3	3
Arkansas (AR)	1	1	1	1	1	1	1	1	1	1	1	1	1	2
California (CA)	1	1	1	1	1	1	2	2	2	2	3	2	2	1
Colorado (CO)	■	3	3	■	3	■	■	■	■	■	■	■	■	■
Connecticut (CT)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Delaware (DE)	3	3	3	3	3	3	2	2	3	2	2	2	2	2
District of Columbia (DC)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Florida (FL)	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Georgia (GA)	3	2	2	2	3	3	2	2	2	1	1	2	2	2
Hawaii (HI)	2	2	2	2	2	2	1	1	1	2	2	1	1	1
Idaho (ID)	■	■	■	■	3	3	■	■	■	■	■	■	■	■
Indiana (IN)	■	3	■	■	■	■	3	■	■	■	■	■	3	■
Iowa (IA)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Kentucky (KY)	2	2	2	1	2	2	3	2	2	2	2	2	2	3
Louisiana (LA)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Massachusetts (MA)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Maryland (MD)	3	3	3	3	3	3	2	3	3	3	2	3	3	2
Maine (ME)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Michigan (MI)	3	3	■	3	3	3	3	3	3	■	3	3	3	3
Minnesota (MN)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Mississippi (MS)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Missouri (MO)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Nebraska (NE)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
New Hampshire (NH)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
New Jersey (NJ)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
New Mexico (NM)	2	1	2	3	2	2	2	2	2	2	2	2	2	2
New York (NY)	3	3	3	2	3	3	3	3	3	3	3	3	3	3
North Carolina (NC)	2	2	1	2	2	2	1	1	1	2	2	1	2	1
North Dakota (ND)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Ohio (OH)	3	3	3	3	3	3	3	■	3	3	3	■	3	3
Oklahoma (OK)	3	■	3	3	■	■	■	3	3	3	■	3	■	■
Pennsylvania (PA)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Rhode Island (RI)	2	3	2	2	2	2	3	3	3	3	3	3	3	3
South Carolina (SC)	1	2	2	2	1	1	1	2	2	2	2	2	2	2
Tennessee (TN)	1	1	1	1	1	1	2	2	2	1	1	2	2	2
Texas (TX)	3	3	3	3	3	3	2	3	2	3	3	3	3	3
Utah (UT)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Virginia (VA)	3	■	3	3	■	3	3	3	■	3	3	3	■	3
West Virginia (WV)	2	2	3	2	2	2	3	2	2	2	2	2	1	2
Wisconsin (WI)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Wyoming (WY)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Guam (GU)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Virgin Islands (VI)	NA	NA	NA	NA	NA	NA	NA	1	1	1	1	1	1	1

Quintiles of Performance

bottom 20 percent				top 20 percent
1	2	3	■	■
1st	2nd	3rd	4th	5th

lower ← proficiency → higher

States categorized in the bottom 20 percent of performance have average mathematics proficiencies in the lowest fifth of the average mathematics proficiency distribution of all states and are indicated by the number 1 (first quintile). States with average proficiencies in the top 20 percent of the distribution are indicated by the number 5 (fifth quintile). The numbers 2, 3, and 4 indicate states with average proficiencies in the second, third, and fourth fifths of the distribution.

NA Grade 4 data for the Virgin Islands are not available.

INTRODUCTION

The National Assessment of Educational Progress (NAEP) is a Congressionally mandated project of the National Center for Education Statistics (NCES) that has collected and reported information for nearly 25 years on what American students know and what they can do. It is the nation's only ongoing, comparable, and representative assessment of student achievement. Its tests are given to scientific samples of youths attending both public and private schools and enrolled in grades four, eight, or twelve. The test items are written around a framework prepared for each content area -- reading, writing, math, science, and others -- that represents the consensus of groups of curriculum experts, educators, members of the general public, and user groups on what should be covered on such a test. Reporting includes means and distributions of scores, as well as more descriptive information about the meaning of different points on the NAEP scale.

A Recent History of NAEP Reporting

Over time there have been many changes in emphasis of NAEP testing and reporting both to take advantage of new technologies and to reflect changing trends in education. In 1984, a new technology called Item Response Theory (IRT) made it possible to create "scale scores" for NAEP similar to those the public was accustomed to seeing for the annual Scholastic Aptitude Tests (SAT). Educational Testing Service, in its role as Government grantee carrying out NAEP operations, devised a new way to describe performance against this scale, called "anchor levels." Starting in 1984, NAEP results were reported by "anchor levels." Anchor levels describe distributions of performance at selected points along the NAEP scale (i.e., standard deviation units). Anchor levels show how groups of students perform relative to each other, but not whether this performance is adequate.

In 1988, Congress authorized a new aspect of NAEP that allowed states and territories to participate voluntarily in a trial state assessment, using samples representative of their own students, to provide state-level data comparable to the nation and each of the other participating jurisdictions. Pursuant to that law, in 1990, the mathematics achievement of eighth graders was assessed in 40 jurisdictions (states, territories, and the District of Columbia). The results were reported in *The State of Mathematics Achievement: NAEP's 1990 Assessment of the Nation and the Trial State Assessment of the States: (Washington, DC: National Center for Education Statistics, 1991).*

In the same 1988 law, Congress established the National Assessment Governing Board (NAGB), assigning it broad policy making authority over NAEP, including the authority to take "appropriate actions . . . to improve the form and use of the National Assessment" and to identify "appropriate achievement goals for each . . . grade and subject area to be tested in the National Assessment." To carry out its responsibilities, NAGB developed achievement levels, which are collective judgments about how students perform, translated into ranges along the NAEP scale. The process was conducted for NAGB under contract by American College Testing (ACT), which has extensive experience in standard-setting in many fields. The standards setting process began with questions such as, "What *should* students know and be able to do if they are proficient in mathematics in the fourth, eighth, or twelfth grade?" The National Assessment Governing Board, after wide consultation including public hearings, developed statements to describe what students should know and be able to do at three levels of proficiency -- "Basic," "Proficient," and "Advanced" -- for each of the three NAEP grades. A panel of expert and broadly representative judges evaluated each NAEP item, judged the proportion of students at each level which should answer the items correctly, and made recommendations that resulted in points along the NAEP scale that corresponded with the minimum score for each of these levels.

In 1990, after Congress had mandated pilot testing at the State level to supplement what had only been conducted for the nation and four large regions, the more rigorous content of the mathematics standards prepared by the National Council of Teachers of Mathematics began to influence the NAEP frameworks.

Also in 1990, the President and the nations's 50 governors adopted six National Education Goals, including one that calls for American students to "leave grades 4, 8, and 12 having demonstrated competency in challenging subject matter, including English, mathematics, science, history, and geography." The adoption of this goal highlighted a perceived deficiency in the Nation's ability to report on the performance of students relative to standards developed through a consensus process.

A Transition Phase in Reporting

This 1992 mathematics report marks NCES's first attempt to shift to standards-based reporting of National Assessment statistics. The transition is being made now to report NAEP results by "achievement levels." Achievement levels describe how students should perform relative to a body of content reflected in the NAEP frameworks (i.e., how much students should know). The impetus for this shift lies in the belief that NAEP data will take on more meaning for the public if they show what proportion of our youth are able to meet standards of performance necessary for a changing world. Chapter 1 of the report describes how the 1992 standards were prepared and provides examples of test exercises that illustrate the mathematics content reflected in the descriptions of the NAEP achievement levels.

Reporting NAEP results on the basis of achievement levels represents a significant change in practice for NCES. On occasion, this agency makes use of emerging analytical approaches that permit new, and sometimes controversial, analyses to be done. Just as other statistical agencies do when introducing new measures to supplement or replace old measures, NCES has in this report provided the data according to the earlier procedures in addition to the new procedures. For this reason, in addition to NAEP results reported according to achievement levels, results according to the scale anchoring procedure that has been used since the 1984 assessment can be found in Appendix A to this report. Presenting the data both ways gives the public -- not just technical evaluators -- an opportunity to be informed, so that all data users will be able to assess for themselves how well the various forms of reporting and interpreting the data meet their needs.

Technical Review of NCES Reports

All reports published by NCES are evaluated through an adjudication procedure. This process represents a final quality control check designed to assure that all publications conform to statistical standards, are grounded in the data, and take into account relevant substantive research literature. The adjudication process also attempts to delete misleading interpretive statements and provide text that is clear and understandable to the American public. During the adjudication of this report neither the process for setting achievement levels developed by ACT nor the scores representing each level was addressed. The process and the cutpoints were taken as a given. The issue of valid inferences was addressed, however. A number of reviewers interpreted statements about what students should do at the various achievement levels according to the standards set by NAGB as statements about what students can do. Independent studies are being conducted concerning the appropriate inferences that can be drawn from the NAEP results reported by achievement levels. Early results from technical evaluations suggested that this apparently logical step in interpretation might not be justified after closer examination of the data about what students at these levels actually demonstrate in terms of mathematical competencies. Discussion about the achievement levels also raised questions about the need for validity evidence for the anchor levels, as well as for greater understanding of the underlying assumptions of the process by which they were developed.[1]

This issue led NCES to seek the advice of several technical committees and to convene a meeting of technical and policy experts. Members, staff, and contractors of the National Assessment Governing Board participated in this meeting. Altogether these activities provided a forum for discussion of various historical and proposed approaches to interpreting the NAEP scale. In order to better inform the public about these and other interpretation issues, a companion NCES report entitled *Interpreting NAEP Scales* (Washington, DC: National Center for Education Statistics, 1993) explains several approaches to reporting information from NAEP.

Actual Student Performance

Then the next question is: Through their performance on the NAEP items, what actual knowledge and abilities did students demonstrate? Chapters 1, 2, and 3 of this report include information on overall means and on distributions of scores, all taken directly from the test item data. The Appendix addresses this question in the manner that NAEP has used since 1985, using anchor points. As implemented for this report, the scale anchoring process provides a concise summary of what students know and can do at various points along the scale that differentiates them from students performing at lower levels. First, students performing at or around four intervals on the scale were identified (200, 250, 300, and 350 -- each of which is one standard deviation unit apart). Next, questions were identified that were answered correctly by 65 percent or more of the students at one level and by fewer than half of the students at the next lower level. Finally, mathematics educators were asked to analyze each anchor-level question and create summary descriptors of the knowledge and skills evidenced by students who answered these sets of questions successfully. The critical distinction here is that anchor levels attempt to describe what students can do at and around selected points on the NAEP scale; achievement levels attempt to describe what students *should be able to do* in various ranges on the NAEP scale.

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[1] Forsyth, R.A. (1991). Do NAEP scales yield valid criterion-referenced interpretations? *Education Measurement: Issues and Practice*. 10. 3-9, 16.

Future Work

These achievement level standards are in the second round (the first being in 1990) in a developmental process which has been revised and is still under review through several studies.[2] [3]

The Board's goal is to provide a statement of what American students should be able to do as a standard that can give more meaning to the NAEP data. They then want to use the NAEP data to inform the nation as to how many students actually can meet those standards.

NCES realizes that modifications and improvements may be necessary in the future as current procedures are evaluated and new approaches are considered. NCES conceives of this process as a research and developmental activity in which numerous statistical, psychometric, and substantive issues must be resolved. At the present time the effort is hampered by the problem of trying to create standards on a given framework and item pool developed for another purpose. In the future the measurement of standards will be a more prominent influence on the development of NAEP procedures.

The goal of the National Center for Education Statistics is to make data available for the public and to do so in accurate and understandable ways that are not misleading. In this case, much of what matters in NAEP is changing:

- the content in response to the developing standards of various curricular groups;

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[2] *Assessing Student Achievement in the States.* The First Report of the National Academy of Education Panel on the Evaluation of the NAEP Trial State Assessment: 1990 Trial State Assessment. National Academy of Education, Stanford, CA: 1992.

[3] Linn, R.L.; Koretz, D.M.; Baker, E.L.; and Burstein, L. The Validity and Credibility of the Achievement Levels for the 1990 National Assessment of Educational Progress in Mathematics, Technical Report CSE No. 330, Center for Research on Evaluation, Standards, and Student Testing, UCLA, (Los Angeles, CA: June 1991).

- the test items in response to new developments in assessments; and

- the reporting in response to, and increasing interest in, student achievement relative to standards of student performance.

We believe that the numerous completed and ongoing studies will lead to national debate that will assure the public is well informed about these issues -- as informed they must be because the results will be a vital influence on what Americans come to think about the condition and progress of our schools.

In addition, the public needs the data in this report to see for themselves what standards-based reporting might do and to evaluate the often conflicting claims of adherents and detractors of these changes in approaches to reporting on the educational achievement of American students. The Center eventually wants to use the achievement levels to describe that students know and can do. In order to accomplish that, the frameworks, tests, and achievement levels may need to be developed in tandem. That is easier to say than to do, however, because it implies a substantially larger pool of test exercises, carefully designed to support reporting about performance relative to a set of performance standards. Clearly this is a developmental effort that will take time and several iterations, during which data supporting appropriate inferences about the performance of American students will continue to be gathered.

CHAPTER ONE

Overall Mathematics Achievement for the Nation and the States

Overview

The National Assessment of Educational Progress (NAEP) is a Congressionally mandated survey of the educational achievement of American students and of changes in that achievement across time. This report contains results from NAEP's 1992 mathematics assessment of nationally representative samples of public- and private-school students in grades 4, 8, and 12 and provides comparisons to the findings from a comparable survey conducted in 1990. It also contains state-level results for public-school students in grades 4 and 8 based on representative samples of each of the 44 jurisdictions that participated in NAEP's 1992 Trial State Assessment Program.

These participants include:

Alabama
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Hawaii
Idaho
Indiana
Iowa
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Nebraska
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Pennsylvania
Rhode Island
South Carolina
Tennessee
Texas
Utah
Virginia
West Virginia
Wisconsin
Wyoming

Guam
Virgin Islands[*]

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[*] The Virgin Islands participated in the testing portion of the 1992 Trial State Assessment Program. However, in accordance with the legislation providing for participants to review and give permission for release of their results, the Virgin Islands chose not to release their results at grade 4 in the national composite report.

The jurisdictions shown in bold-face type also participated in the 1990 Trial State Program in eighth-grade mathematics. Thus, trend results between 1990 and 1992 at grade 8 are also included for these 34 states, the District of Columbia, and two territories. The 1990 program included 37 states, the District of Columbia, and two territories. Three states -- Montana, Illinois, and Oregon -- participated in the 1990 trial state assessments, but not in the 1992 program.

Congress in 1988 authorized the additional dimension of state-level assessments for NAEP on a trial basis, which provided for voluntary participation by states and territories in 1990 and 1992. Designed to provide results that can be compared across the nation and participating jurisdictions, the trial program included eighth-grade mathematics in 1990 and 1992 as well as fourth-grade mathematics and reading in 1992.

In authorizing the legislation for the NAEP Trial State Assessment Program, Congress called for an independent evaluation of the feasibility and validity of the assessments and the fairness and accuracy of the data they produce. Thus, the various steps included in the program continue to be evaluated by an independent panel appointed by the National Academy of Education.[4]

The Mathematics Content Assessed in 1990 and 1992

With the advent of the Trial State Assessment Program, even greater care was taken to solicit widespread involvement and advice about the development and conduct of the 1990 mathematics assessment, and further improvements were made for 1992. The mathematics objectives framework underlying the assessments was developed under the auspices of the Council of Chief State School Officers (CCSSO) through a special NAEP Planning Project sponsored by the National Center for Education Statistics (NCES) and the National Science Foundation.[5] Although those involved in the legislatively mandated consensus development process drew upon the available draft of the *Curriculum and Evaluation Standards for School Mathematics*, developed by the National Council of

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[4] *Assessing Student Achievement in the States: The First Report of the National Academy of Education Panel on the Evaluation of the NAEP Trial State Assessment: 1990 Trial State Assessment* (Stanford, CA: National Academy of Education, Stanford University, 1992). A second report on the 1992 program is forthcoming in June 1993.

[5] *Mathematics Objectives, 1990 Assessment* (Princeton, NJ: National Assessment of Educational Progress, Educational Testing Service, 1988).

Teachers of Mathematics,[6] the project involved widespread participation and review, including an objectives committee of mathematics educators; a steering committee with 18 members representing policymakers, practitioners, and citizens at large; distribution to the mathematics supervisors in the education agencies of all 50 states for review by state committees; reviews by mathematics scholars and NCES staff; and endorsement by the National Assessment Governing Board (NAGB) for both the 1990 and 1992 assessments.

The mathematics objectives were designed as a matrix comprising five broad content areas and three levels of mathematical ability. The five content areas are: numbers and operations; measurement; geometry; data analysis, statistics, and probability; and algebra and functions. The mathematical abilities are: conceptual understanding, procedural knowledge, and problem solving.

The 1990 assessment included a broad range of questions that required students to solve problems in both constructed-response and multiple-choice formats, provide responses using protractors/rulers, and use calculators (four-function at grade 4 and scientific at grades 8 and 12). For 1992, the assessments were expanded to include "manipulable" geometric shapes as well as questions that allowed students about five minutes to demonstrate -- in writing and diagrams -- their mathematical reasoning and problem-solving ability. In general, a greater emphasis was placed on questions asking students to construct their responses, and the proportion of multiple-choice questions was reduced. Also, a special component of the assessment in which students are led by audiotape through a series of tasks designed to measure their estimation skills (conducted only at the national level in 1990) was included in the state assessments in 1992. By pacing students through a series of problems, this portion of the assessment reveals whether students can provide reasonable estimates of answers without doing the actual computation. To supplement the achievement results, students, teachers, and school administrators were asked to complete questionnaires about their backgrounds and instructional practices in mathematics.

In both 1990 and 1992, identical assessment instruments were used in both the national and Trial State Assessments. A portion of the questions in the 1992 assessment were carried forward from 1990 to provide a basis for measuring trends between the two assessments.

The questions and background questionnaires were developed by staff and consultants at Educational Testing Service (ETS), which conducted the work under contract with NCES, with the guidance of panels of distinguished educators, and in accordance with the *ETS Standards for Quality and Fairness.*[7] Subsequent to rigorous internal review, the NAEP materials were further reviewed by NCES, NAGB, and the Office of Management and Budget. All materials used in the Trial State Assessments were reviewed by state agency personnel (both mathematics and testing experts).

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[6] *Curriculum and Evaluation Standards for School Mathematics* (Reston VA: National Council of Teachers of Mathematics, 1989).

The Conduct of the 1990 and 1992 Assessments

As with all NAEP assessments, the schools and students participating in the 1990 and 1992 mathematics assessments were selected through scientifically designed stratified random sampling procedures. Approximately 26,000 fourth, eighth, and twelfth graders in 1,500 public and private schools across the country participated in the national assessment. For each jurisdiction participating in the Trial State Assessment Program, approximately 2,500 students were sampled from approximately 100 public schools for each grade and curriculum area. Thus, a total of approximately 220,000 fourth- and eighth-grade students attending nearly 9,000 public schools participated in the 1992 trial state assessments.

All NAEP data are collected by trained administrators. Data for the national assessment were collected by a field staff managed by the ETS subcontractor, Westat, Inc. However, in accordance with the NAEP legislation, data collection for the Trial State Assessment Program was the responsibility of each participating jurisdiction. Uniformity of procedures across states was achieved through training and quality control monitoring by Westat, Inc. In 1990, Westat staff trained about 4,000 state assessment administrators using a video presentation accompanied by a scripted trainer's guide and practice exercises. Parallel procedures were used in 1992 when Westat trained nearly 10,000 state personnel. Quality control was provided by unannounced, random monitoring of half the sessions in each state. The results of the monitoring in 1990 and 1992 indicated a high degree of quality and uniformity across sessions.

The materials, including approximately two million written responses constructed by students in 1990 and four million in 1992, were scored by a second subcontractor, National Computer Systems, and the results were analyzed by Educational Testing Service. As expected, numerous quality control steps were undertaken to ensure the accuracy of the results. Throughout, NCES and its contractors worked closely with the Trial State Assessment NETWORK, which includes representatives from all interested states. Federal funding permitted state education personnel to meet with staff members from NCES, the contractors, NAGB, and CCSSO at NETWORK meetings regularly held to review NAEP materials and procedures.

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[7] *ETS Standards for Quality and Fairness* (Princeton, NJ: Educational Testing Service, 1987).

Orientation to This Report

This report is one of a series, which taken in its entirety is designed to provide a comprehensive account of the results from NAEP 1992 mathematics assessment and how the 1992 and 1990 results compare. It focuses on the achievement data, whereas subsequent reports will describe other results, including students' responses to the constructed-response questions and the relationships between achievement and background factors. The complete results for the nation and the states are contained in the *Data Compendium from the 1992 Mathematics Assessment*. Also, a separate report tailored for each participating state highlights the state's results compared to national and regional performance.

The assessment results were analyzed to determine the percentage of students responding correctly to each question and item response theory (IRT) methods were used to summarize results for each of the five mathematics content areas in the framework. An overall composite scale was then developed by weighting each content area according to its importance in the objectives.[8] The composite scale is the main mechanism used in this report to compare overall achievement across grades, to determine educational progress between 1990 and 1992, to compare results across demographic subpopulations, and to compare states to each other and the nation.

Average proficiency on the NAEP scale provides an overall depiction of students' mathematics achievement; however, by itself, it does not describe what students know and are able to do in mathematics, nor does it evaluate students' performance against a standard. In this report, the interpretations of the NAEP scale are based primarily on three achievement levels -- *Basic*, *Proficient*, and *Advanced* -- developed by NAGB to inform policymakers and the public about what students should know and be able to do on the NAEP assessments. Rather than focusing only on the most advanced students or defining a single minimal level of achievement, the Board wanted to provide standards for assessing a broad spectrum of performance. Performance at the *Basic* level denotes partial mastery of the knowledge and skills fundamental for proficient work at each grade level but is not deemed satisfactory. The central level, *Proficient*, represents solid academic performance at each grade level assessed. Achievement at the *Advanced* level signifies superior performance at the grades assessed. Full definitions of these levels are presented below. To carry out the task of applying these standards to the 1992 mathematics assessment, NAGB contracted with American College Testing to undertake advisory and analytic functions that could assist the Board in forming its conclusions as to appropriate achievement levels.[9]

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[8] More detailed information on the NAEP scaling procedures can be found in Appendix D, including the weightings by content area used to create the overall scale.

Definitions of Achievement Levels

Basic. This level, below proficient, denotes partial mastery of knowledge and skills that are fundamental for proficient work at each grade -- 4, 8, and 12. For 12th grade, this is higher than minimum competency skills (which normally are taught in elementary and junior high schools) and covers significant elements of standard high-school-level work.

Proficient. This central level represents solid academic performance for each grade tested -- 4, 8, and 12. It reflects a consensus that students reaching this level have demonstrated competency over challenging subject matter and are well prepared for the next level of schooling. At grade 12, the proficient level encompasses a body of subject-matter knowledge and analytical skills, of cultural literacy and insight, that all high school graduates should have for democratic citizenship, responsible adulthood, and productive work.

Advanced. This higher level signifies superior performance beyond proficient grade-level mastery at grades 4, 8, and 12. For 12th grade, the advanced level shows readiness for rigorous college courses, advanced technical training, or employment requiring advanced academic achievement. As data become available, it may be based in part on international comparisons of academic achievement and may also be related to Advanced Placement and other college placement exams.

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[9] Appendix D provides more information about the process of gathering expert judgments about Basic, Proficient, and Advanced performance -- as defined by NAGB policy -- on each mathematics item, combining the various judgments on the various items and mapping them onto the scale, and setting the scale-score cutpoints for reporting purposes based on these levels.

Although achievement levels were reported on a trial basis for the 1990 mathematics assessment,[10] the primary way of interpreting the NAEP scale for that assessment was based on describing what students know and can do at four anchor levels of the scale -- 200, 250, 300, and 350.[11] Scale anchoring provides empirically-based descriptions of the types of procedural knowledge, mathematical skills, and problem-solving abilities demonstrated by students who answer questions correctly at each level. For purposes of comparison to 1990, the 1992 anchor-level results are provided in Appendix A.[12] These two ways of interpreting NAEP scales (together with several other methods) are thoroughly reviewed and contrasted in *Interpreting NAEP Scales*.[13] It is important to note, however, that because improvements in both the achievement levels-setting process and NAEP scaling procedures were implemented in 1992 and applied to the 1990 data for trend purposes, the 1990 results in this report will differ from those in earlier reports for both the achievement-level and anchor-level results.

The remainder of Chapter One contains the overall average mathematics proficiency results and the percentages of students at each grade performing at or above the three achievement levels for the nation, the regions of the country, and the states for both 1990 and 1992. Comparisons among the states based on overall average proficiency and percentiles for the nation and the states also are presented.

Chapter Two provides results parallel to those in Chapter One for subpopulations of students according to demographic characteristics defined by race/ethnicity, gender, type of community, and parents' education level.

Chapter Three presents the results for the nation, regions, and states for each of the five mathematics content areas defined in the framework, as well as for the special estimation assessment. This special portion of the assessment also has its own achievement levels developed under the direction of NAGB as part of its standard-setting process.

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[10] Mary Lyn Bourque and Howard H. Garrison, *The Levels of Mathematics Achievement: Initial Performance Standards for the 1990 NAEP Mathematics Assessment* (Washington, D.C.: National Assessment Governing Board, 1991).

[11] Ina V.S. Mullis, et al., *The State of Mathematics Achievement: NAEP's 1990 Assessment of the Nation and the Trial Assessment of the States* (Washington, D.C.: National Center for Education Statistics, 1991).

[12] Appendix A also briefly describes the process of developing the anchor level descriptions through identifying items that discriminate among students performing at adjacent levels and the close examination by mathematics experts of the characteristics of those items to generalize about the skills exemplified.

[13] Gary W. Phillips, et al., *Interpreting NAEP Scales* (Washington, D.C.: National Center for Education Statistics, 1993).

In addition to Appendix A, which contains the anchor-level data, Appendix B describes the participation rates for the trial state assessments, Appendix C contains additional state-level statistics external to NAEP compiled by NCES, and Appendix D provides further detail about the assessment procedures.

The Mathematics Achievement Levels

As part of the process of setting achievement levels, a broadly constituted panel of judges operationalized the NAGB standards in terms of specific mathematical skills, knowledge, and behaviors that were judged to be appropriate expectations for students in each grade, and were in accordance with the assessment framework for the 1990 and 1992 assessments. The judges rated each item in the 1992 assessment in terms of the expected probability of answering the item correctly at each achievement level, based on the policy definitions and the factors that influence item difficulty. These ratings were aggregated and mapped onto the 0 to 500 NAEP scale to obtain the achievement levels.

Subsequently, the operationalized descriptions were refined by the judges and exemplar questions were selected that reflected the kinds of tasks examinees at or above each level were likely to be able to perform successfully. FIGURES 1.1 through 1.3 show the full text for the descriptions of the three achievement levels developed for each of grades 4, 8, and 12, respectively, and the scale-score cutpoints for each level. Each achievement level at each grade is supported by examples of assessment questions. The exemplars displayed in this report were selected to be illustrative of the content found in the 1992 mathematics assessment framework, and were judged to be generally representative of the achievement levels descriptions. In some cases student performance on these questions meets the standards described in the levels descriptions. In other instances, this is not true, particularly for several exemplars at the advanced level. The national percentages of success presented with the exemplars indicate that students had considerable difficulty with some of the tasks requiring written explanations. Two types of percentages are presented. The overall percent correct shows the national percentage of success on each of the individual questions; that is, the percentage of students across the country who answered the question correctly. The conditional percentage of success on each question for the achievement level shows, of the students who performed in the interval between that achievement level and the next highest achievement level, what percentage of those students were successful in answering the question. Both these percentages relate to students' performance on the individual assessment questions. The percentages of students at each grade performing at or above the three achievement levels, which differ from the percentages for individual questions, are contained in Table 1.1 following the descriptions and exemplar items.

FIGURE 1.1 Description of Mathematics Achievement Levels for Basic, Proficient, and Advanced Fourth Graders

The five NAEP content areas are (1) numbers and operations, (2) measurement, (3) geometry, (4) data analysis, statistics, and probability, and (5) algebra and functions. At the fourth-grade level, algebra and functions are treated in informal and exploratory ways, often through the study of patterns. Skills are cumulative across levels – from Basic to Proficient to Advanced.

Basic 211	**Fourth-grade students performing at the basic level should show some evidence of understanding the mathematical concepts and procedures in the five NAEP content areas.**

Fourth graders performing at the basic level should be able to estimate and use basic facts to perform simple computations with whole numbers; show some understanding of fractions and decimals; and solve some simple real-world problems in all NAEP content areas. Students at this level should be able to use -- though not always accurately -- four function calculators, rulers, and geometric shapes. Their written responses are often minimal and presented without supporting information.

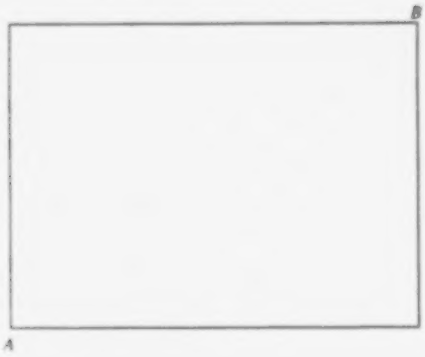
Proficient 248	**Fourth-grade students performing at the proficient level should consistently apply integrated procedural knowledge and conceptual understanding to problem solving in the five NAEP content areas.**

Fourth graders performing at the proficient level should be able to use whole numbers to estimate, compute, and determine whether results are reasonable. They should have a conceptual understanding of fractions and decimals; be able to solve real-world problems in all NAEP content areas; and use four-function calculators, rulers, and geometric shapes appropriately. Students performing at the proficient level should employ problem-solving strategies such as identifying and using appropriate information. Their written solutions should be organized and presented both with supporting information and explanations of how they were achieved.

Advanced 280	**Fourth-grade students performing at the advanced level should apply integrated procedural knowledge and conceptual understanding to complex and nonroutine real-world problem solving in the five NAEP content areas.**

Fourth graders performing at the advanced level should be able to solve complex and nonroutine real-world problems in all NAEP content areas. They should display mastery in the use of four-function calculators, rulers, and geometric shapes. These students are expected to draw logical conclusions and justify answers and solution processes by explaining why, as well as how, they were achieved. They should go beyond the obvious in their interpretations and be able to communicate their thoughts clearly and concisely.

Grade 4 Basic: Example 1



Overall Percent Correct*
Grade 4: 52 (1.5)

Conditional-Basic
Grade 4: 64%

Use your centimeter ruler to make the following measurements to the nearest centimeter.

What is the length in centimeters of one of the longer sides of the rectangle?

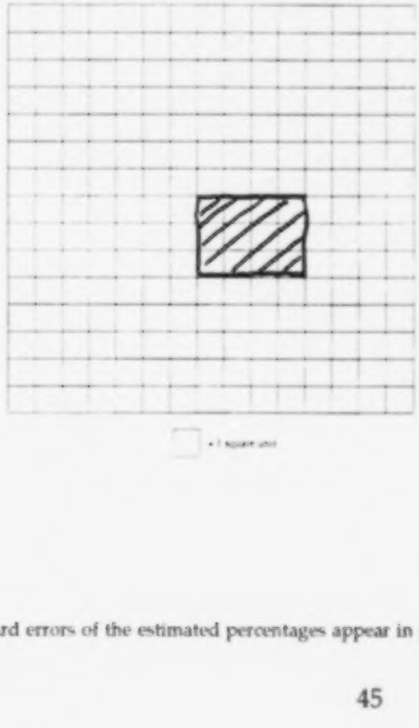
Answer 8 centimeters

Grade 4 Basic: Example 2

On the grid below, draw a rectangle with an area of 12 square units.

Overall Percent Correct*
Grade 4: 42 (1.4)

Conditional-Basic
Grade 4: 49%



(One possible response)

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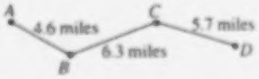
*The standard errors of the estimated percentages appear in parentheses.

Grade 4 Proficient: Example 1

Overall Percent Correct*
Grade 4: 25 (1.6)

Conditional-Proficient
Grade 4: 54%



Carol wanted to estimate the distance from *A* to *D* along the path shown on the map above. She correctly rounded each of the given distances to the nearest mile and then added them. Which of the following sums could be hers?

A 4 + 6 + 5 = 15

B 5 + 6 + 5 = 16

[✓ C] 5 + 6 + 6 = 17

D 5 + 7 + 6 = 18

Grade 4 Proficient: Example 2

Overall Percent Correct*
Grade 4: 36 (1.5)

Conditional-Proficient
Grade 4: 60%

By how much would 217 be increased if the digit 1 were replaced by a digit 5 ?

A 4

[✓ B] 40

C 44

D 400

---

*The standard errors of the estimated percentages appear in parentheses.

Grade 4 Proficient: Example 3

Overall Percent Correct*
Grade 4: 42 (1.2)

Conditional-Proficient
Grade 4: 74%

Column *A*	Column *B*
12 →	3
16 →	4
24 →	6
40 →	10

What is a rule used in the table to get the numbers in column *B* from the numbers in column *A* ?

[✓ A] Divide the number in column *A* by 4.

B Multiply the number in column *A* by 4.

C Subtract 9 from the number in column *A*.

D Add 9 to the number in column *A*.

Did you use the calculator on this question?

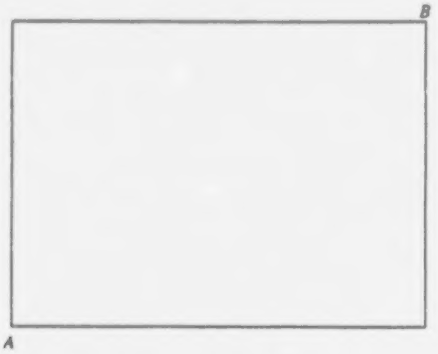
[✓ Yes] No

Grade 4 Proficient: Example 4

(size reduced from original)

Overall Percent Correct*
Grade 4: 60 (1.2)

Conditional-Proficient
Grade 4: 92%



Use your centimeter ruler to make the following measurements to the nearest centimeter.

What is the length in centimeters of the diagonal from *A* to *B* ?

Answer: 10 Centimeters

---

*The standard errors of the estimated percentages appear in parentheses.

Grade 4 Proficient: Example 5

Overall Percent Correct*
Grade 4: 20 (0.9)

Conditional-Proficient
Grade 4: 48%

Lynn had only quarters, dimes, and nickels to buy her lunch. She spent all of the money and received no change. Could she have spent $1.98 ?

Yes [✓ No]

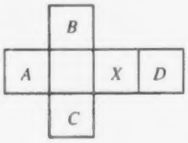
Give a reason for your answer.

With the coins she had, she could have only had $1.95 or $2.00.

Grade 4 Advanced: Example 1

Overall Percent Correct*
Grade 4: 22 (1.4)

Conditional-Advanced
Grade 4: 90%



The squares in the figure above represent the faces of a cube which has been cut along some edges and flattened. When the original cube was resting on face *X*, which face was on top?

[✓ A] *A*

B *B*

C *C*

D *D*

---

*The standard errors of the estimated percentages appear in parentheses.

Grade 4 Advanced: Example 2

Overall Percent Correct*
Grade 4: 48 (1.2)

Conditional-Advanced
Grade 4: 95%

If □ represents the number of newspapers that Lee delivers each day, which of the following represents the total number of newspapers that Lee delivers in 5 days?

A 5 + □

[✓ **B**] 5 × □

C □ ÷ 5

D (□ + □) × 5

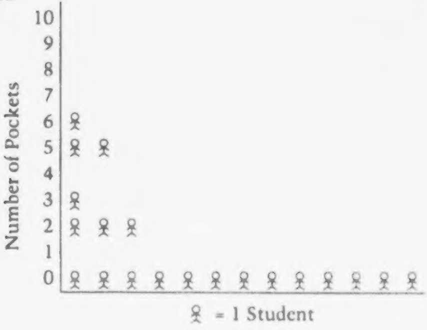
Grade 4 Advanced: Example 3

Overall Percent
Satisfactory or Better*
Grade 4:10 (0.9)

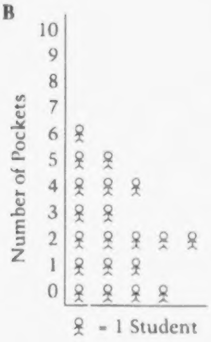
Conditional-Advanced
Grade 4: 59%

There are 20 students in Mr. Pang's class. On Tuesday most of the students in the class said they had pockets in the clothes they were wearing.

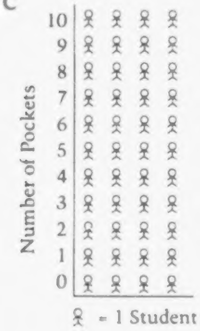
A



B



C



*The standard errors of the estimated percentages appear in parentheses.

Grade 4 Advanced: Example 3 (continued)

Which of the graphs most likely shows the number of pockets that each child had? B

Explain why you chose that graph.

Because it shows 20 students and most of the students have pockets.

Explain why you did not choose the other graphs.

It cannot be A because in A most of the students do not have pockets.

It cannot be C because in C there are more than 20 students shown.

Note: Example of an extended response.

*The standard errors of the estimated percentages appear in parentheses.

FIGURE 1.2 Description of Mathematics Achievement Levels for Basic, Advanced, and Proficient Eighth Graders

The five NAEP content areas are (1) numbers and operations, (2) measurement, (3) geometry, (4) data analysis, statistics, and probability, and (5) algebra and functions. Skills are cumulative across levels -- from Basic to Proficient to Advanced.

Basic 256	**Eighth-grade students performing at the basic level should exhibit evidence of conceptual and procedural understanding in the five NAEP content areas. This level of performance signifies an understanding of arithmetic operations -- including estimation -- on whole numbers, decimals, fractions, and percents.**

Eighth graders performing at the basic level should complete problems correctly with the help of structural prompts such as diagrams, charts, and graphs. They should be able to solve problems in all NAEP content areas through the appropriate selection and use of strategies and technological tools -- including calculators, computers, and geometric shapes. Students at this level also should be able to use fundamental algebraic and informal geometric concepts in problem solving.

As they approach the proficient level, students at the basic level should be able to determine which of available data are necessary and sufficient for correct solutions and use them in problem solving. However, these 8th graders show limited skill in communicating mathematically.

Proficient 294	**Eighth-grade students performing at the proficient level should apply mathematical concepts and procedures consistently to complex problems in the five NAEP content areas.**

Eighth graders performing at the proficient level should be able to conjecture, defend their ideas, and give supporting examples. They should understand the connections between fractions, percents, decimals, and other mathematical topics such as algebra and functions. Students at this level are expected to have a thorough understanding of basic level arithmetic operations -- an understanding sufficient for problem solving in practical situations.

Quantity and spatial relationships in problem solving and reasoning should be familiar to them, and they should be able to convey underlying reasoning skills beyond the level of arithmetic. They should be able to compare and contrast mathematical ideas and generate their own examples. These students should make inferences from data and graphs; apply properties of informal geometry; and accurately use the tools of technology. Students at this level should understand the process of gathering and organizing data and be able to calculate, evaluate, and communicate results within the domain of statistics and probability.

Advanced 331	**Eighth-grade students performing at the advanced level should be able to reach beyond the recognition, identification, and application of mathematical rules in order to generalize and synthesize concepts and principles in the five NAEP content areas.**

Eighth graders performing at the advanced level should be able to probe examples and counterexamples in order to shape generalizations from which they can develop models. Eighth graders performing at the advanced level should use number sense and geometric awareness to consider the reasonableness of an answer. They are expected to use abstract thinking to create unique problem-solving techniques and explain the reasoning processes underlying their conclusions.

Grade 8 Basic: Example 1

Jill needs to earn $45.00 for a class trip. She earns $2.00 each day on Mondays, Tuesdays, and Wednesdays, and $3.00 each day on Thursdays, Fridays, and Saturdays. She does not work on Sundays. How many weeks will it take her to earn $45.00 ?

Answer: 3 weeks

Overall Percent Correct[*]
Grade 8: 59 (1.4)

Conditional-Basic
Grade 8: 64%

Grade 8 Basic: Example 2

Which of the following is both a multiple of 3 and a multiple of 7 ?

A 7,007
B 8,192
[✓ **C**] 21,567
D 22,287
E 40,040

Did you use the calculator on this question?

Yes No

Overall Percent Correct[*]
Grade 8: 77 (1.2)

Conditional-Basic
Grade 8: 83%

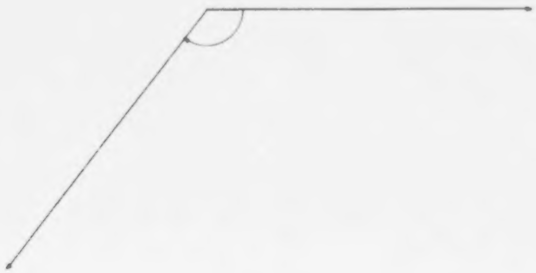
---

[*] The standard errors of the estimated percentages appear in parentheses.

Grade 8 Basic: Example 3

Overall Percent Correct*
Grade 8: 35 (1.9)

Conditional-Basic
Grade 8: 37%



Use your protractor to find the degree measure of the angle shown above.

Answer: 128°

Grade 8 Proficient: Example 1

Overall Percent Correct*
Grade 8: 48 (1.4)

Conditional-Proficient
Grade 8: 73%

Tracy said, "I can multiply 6 by another number and get an answer that is smaller than 6."

Pat said, "No, you can't. Multiplying 6 by another number always makes the answer 6 or larger."

Who is correct? Give a reason for your answer.

Tracy — If you multiply 6 by any number less than 1, the answer will always be less than 6.

Did you use the calculator on this question?

Yes No

---

*The standard errors of the estimated percentages appear in parentheses.

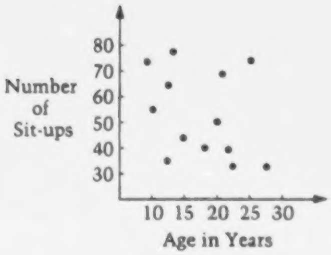
Grade 8 Proficient: Example 2

Overall Percent Correct*

Grade 8: 23 (1.2)

Conditional Proficient

Grade 8: 36%



In the graph above, each dot shows the number of sit-ups and the corresponding age for one of 13 people. According to this graph, what is the median number of sit-ups for these 13 people?

A 15

B 20

C 45

[✓ **D**] 50

E 55

Did you use the calculator on this question?

Yes No

Grade 8 Proficient: Example 3

Overall Percent Correct*

Grade 8: 62 (1.5)

Conditional-Proficient

Grade 8: 90%

Harriet, Jim, Roberto, Maria, and Willie are in the same eighth-grade class. One of them is this year's class president. Based on the following information, who is the class president?

1. The class president was last year's class vice president and lives on Vine Street.
2. Willie is this year's class vice president.
3. Jim and Maria live on Cypress Street.
4. Roberto was not last year's class vice president.

[✓ **A**] Harriet

B Jim

C Roberto

D Maria

E Willie

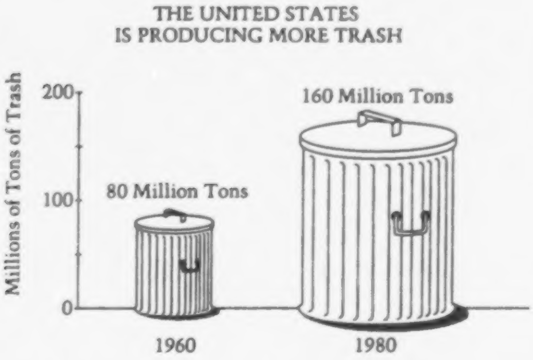
---

*The standard errors of the estimated percentages appear in parentheses.

Grade 8 Advanced: Example 1

Overall Percent Correct*
Grade 8: 8 (0.8)

Conditional-Advanced
Grade 8: 42



The pictograph shown above is misleading. Explain why.

Answer: Both the width and the height have been doubled.

Grade 8 Advanced: Example 2

Overall Percent Correct*
Grade 8: 25 (1.3)

Conditional-Advanced
Grade 8: 79%

A	*B*
2	5
4	9
6	13
8	17
14	?

If the pattern shown in the table were continued, what number would appear in the box at the bottom of column *B* next to 14 ?

A 19

B 21

C 23

D 25

[✓ E] 29

*The standard errors of the estimated percentages appear in parentheses.

FIGURE 1.3 Description of Mathematics Achievement Levels for Basic, Advanced, and Proficient Twelfth Graders

The five NAEP content areas are (1) numbers and operations, (2) measurement, (3) geometry, (4) data analysis, statistics, and probability, and (5) algebra and functions. Skills are cumulative across levels -- from Basic to Proficient to Advanced.

Basic 287	**Twelfth-grade students performing at the basic level should demonstrate procedural and conceptual knowledge in solving problems in the five NAEP content areas.**

Twelfth grade students performing at the basic level should be able to use estimation to verify solutions and determine the reasonableness of results as applied to real-world problems. They are expected to use algebraic and geometric reasoning strategies to solve problems. Twelfth graders performing at the basic level should recognize relationships presented in verbal, algebraic, tabular, and graphical forms; and demonstrate knowledge of geometric relationships and corresponding measurement skills.

They should be able to apply statistical reasoning in the organization and display of data and in reading tables and graphs. They also should be able to generalize from patterns and examples in the areas of algebra, geometry, and statistics. At this level, they should use correct mathematical language and symbols to communicate mathematical relationships and reasoning processes; and use calculators appropriately to solve problems.

Proficient 334	**Twelfth-grade students performing at the proficient level should consistently integrate mathematical concepts and procedures to the solutions of more complex problems in the five NAEP content areas.**

Twelfth graders performing at the proficient level should demonstrate an understanding of algebraic, statistical, and geometric and spatial reasoning. They should be able to perform algebraic operations involving polynomials; justify geometric relationships; and judge and defend the reasonableness of answers as applied to real-world situations. These students should be able to analyze and interpret data in tabular and graphical form; understand and use elements of the function concept in symbolic, graphical, and tabular form; and make conjectures, defend ideas, and give supporting examples.

Advanced 366	**Twelfth-grade students performing at the advanced level should consistently demonstrate the integration of procedural and conceptual knowledge and the synthesis of ideas in the five NAEP content areas.**

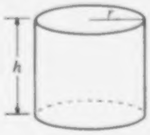
Twelfth-grade students performing at the advanced level should understand the function concept; and be able to compare and apply the numeric, algebraic, and graphical properties of functions. They should apply their knowledge of algebra, geometry, and statistics to solve problems in more advanced areas of continuous and discrete mathematics.

They should be able to formulate generalizations and create models through probing examples and counterexamples. They should be able to communicate their mathematical reasoning through the clear, concise, and correct use of mathematical symbolism and logical thinking.

Grade 12 Basic: Example 1

Overall Percent Correct*
Grade 12: 68 (1.7)

Conditional-Basic
Grade 12: 83%



The volume V of a right circular cylinder like the one in the figure above is given by the formula $V = \pi r^2 h$. In terms of π, what is the volume of a cylinder with radius $r = 4$ and height $h = 10$?

A 18π

B 26π

C 80π

[✓ D] 160π

E 1,600π

---

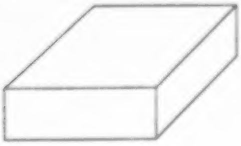
*The standard errors of the estimated percentages appear in parentheses.

Grade 12 Basic: Example 2

Overall Percent Correct*
All Four Parts
Grade 12: 42 (1.3)

Each Part
(a) 90 (0.8)
(b) 68 (1.2)
(c) 74 (1.1)
(d) 56 (1.3)

Conditional-Basic
Grade 12: Each Part
(a) 93%
(b) 76%
(c) 81%
(d) 64%

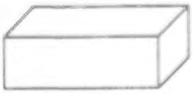


The piece of fudge shown above is in the shape of a rectangular solid. If a knife makes one straight cut through the fudge, which of the following can be the piece cut off?

Fill in one oval to indicate YES or NO for each shape.

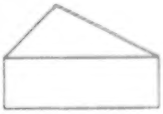
Yes No

(a)



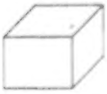
[✓ A] B

(b)



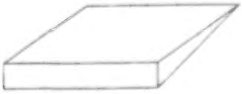
[✓ A] B

(c)



A [✓ B]

(d)



[✓ A] B

Did you use the calculator on this question?

Yes [✓ No]

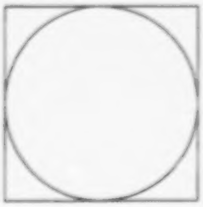
---

*The standard errors of the estimated percentages appear in parentheses.

Grade 12 Basic: Example 3

Overall Percent Correct*
Grade 12: 70 (1.5)

Conditional-Basic
Grade 12: 79%



The length of a side of the square above is 6. What is the length of the radius of the circle?

A 2

[✓ B] 3

C 4

D 6

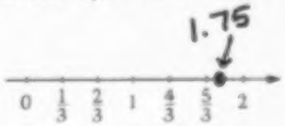
E 8

Grade 12 Basic: Example 4

Overall Percent Correct*
Grade 12: 50 (1.7)

Conditional-Basic
Grade 12: 56%

On the number line below, place a dot at the point that could represent 1.75.



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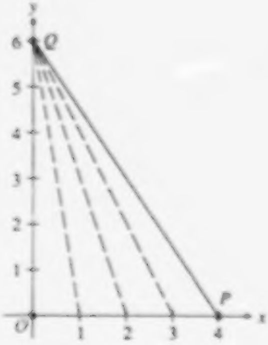
*The standard errors of the estimated percentages appear in parentheses.

Grade 12 Proficient: Example 1

Overall Percent Correct*
Grade 12: 29 (1.5)

Conditional-Proficient
Grade 12: 89%



In the figure above, point Q is fixed and point P starts at 4 and moves left along the x-axis. As P moves left along the x-axis toward O, the area of $\triangle POQ$ changes.

Use the information given to complete the table below to show how the area of $\triangle POQ$ changes as P goes from the position shown to the origin O.

x - coordinate of P	Area of ΔPOQ
4	12
3	9
2	6
1	3
0	0

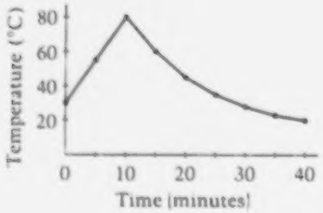
---

*The standard errors of the estimated percentages appear in parentheses.

Grade 12 Proficient: Example 2

Overall Percent Correct*
Grade 12: 74 (1.4)

Conditional-Proficient
Grade 12: 97%



The graph above best conveys information about which of the following situations over a 40-minute period of time?

A Oven temperature while a cake is being baked

[✓ B] Temperature of water that is heated on a stove, then removed and allowed to cool

C Ocean temperature in February along the coast of Maine

D Body temperature of a person with a cold

E Temperature on a July day in Chicago

Did you use the calculator on this question?

Yes [✓ No]

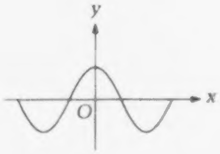
---

*The standard errors of the estimated percentages appear in parentheses.

Grade 12 Advanced: Example 1

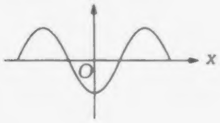
Overall Percent Correct*
Grade 12: 20 (1.3)

Conditional-Advanced
Grade 12: 92%

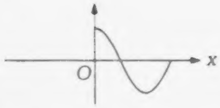


The figure above shows the graph of $y = f(x)$. Which of the following could be the graph of $y = |f(x)|$?

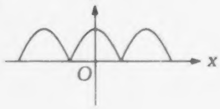
A



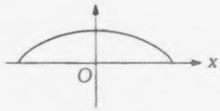
B



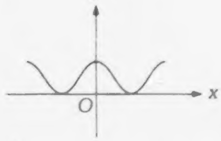
[✓ C]



D



E



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*The standard errors of the estimated percentages appear in parentheses.

Grade 12 Advanced: Example 2

Overall Percent Correct*
Grade 12: 30 (1.6)

Conditional-Advanced
Grade 12: 84%

Suppose $4r = 3s = 10t$, where r, s, and t are positive integers. What is the sum of the least values of r, s, and t for which this equality is true?

A 7

B 17

[✓ C] 41

D 82

E 120

Did you use the calculator on this question?

Yes [✓ No]

---

*The standard errors of the estimated percentages appear in parentheses.

Overall Average Mathematics Proficiency and Achievement Level Results for the Nation

TABLE 1.1 presents the average mathematics proficiency for fourth-, eighth-, and twelfth-grade students attending public and private schools across the nation. It also shows the percentages of students at each grade performing at or above the three achievement levels. TABLE 1.2 summarizes the scale-score cutpoints corresponding to each achievement level by grade.

TABLE 1.1 National Overall Average Mathematics Proficiency and Achievement Levels, Grades 4, 8, and 12

			Percentage of Students At or Above			
Grades	Assessment Years	Average Proficiency	Advanced	Proficient	Basic	Percentage Below Basic
4	1992	218(0.7)>	2(0.3)	18(1.0)>	61(1.0)>	39(1.0)<
	1990	213(0.9)	1(0.4)	13(1.1)	54(1.4)	46(1.4)
8	1992	268(0.9)>	4(0.4)	25(1.0)>	63(1.1)>	37(1.1)<
	1990	263(1.3)	2(0.4)	20(1.1)	58(1.4)	42(1.4)
12	1992	299(0.9)>	2(0.3)	16(0.9)	64(1.2)>	36(1.2)<
	1990	294(1.1)	2(0.3)	13(1.0)	59(1.5)	41(1.5)

>The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level.
< The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level.
The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent confidence that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details)

TABLE 1.2 Mathematics Proficiency (Scale-Score Cutpoint) Corresponding to Each Achievement Level, Grades 4, 8, and 12

Grades	Advanced	Proficient	Basic
4	280	248	211
8	331	294	256
12	366	334	287

As expected, the assessment data reveal that students in the higher grades performed better than students in the lower grades. For both 1990 and 1992, the largest gain was from the fourth grade to the eighth grade (50 scale points), although there was also a gain of about 30 scale points from grade 8 to grade 12.

Further, there was a significant improvement in average proficiency at all three grades from 1990 to 1992. This good news may indicate that some of the efforts recommended for teachers and parents by those interested in improving mathematics education are beginning to have some impact on student learning across the country.[14]

The bad news is that, even with these gains, more than one-third of the students in grades 4, 8, and 12 performed below the Basic level in the 1992 assessment. Also, considering, for example, that the cutpoint for the Basic level of performance is 211 at grade 4 and that for the Proficient level it is 248, on average, fourth graders are performing only somewhat above the Basic level (218). Similar results were observed for grades 8 and 12, indicating that, on average, students are below the Proficient level and only possess "partial mastery of knowledge and skills that are fundamental for proficient work at each grade."

Fourth Grade: Attainment of Achievement Levels

There were statistically significant increases in the percentages of fourth graders achieving at or above the Basic and Proficient levels from 1990 to 1992. At the fourth grade, in 1992, 61 percent of the students were estimated to be at or above the Basic level of performance in mathematics, with 39 percent estimated to be performing below the Basic level. This implies that at least 61 percent of the students should be able to "use basic facts to perform simple computations with whole numbers; show some understanding of fractions and decimals; and solve simple real-world problems in all the NAEP content areas." Eighteen percent of the students were estimated to be at or above the Proficient level. "These students should have a conceptual understanding of fractions and decimals ...

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[14] *Curriculum and Evaluation Standards for School Mathematics* (Reston, VA: National Council of Teachers of Mathematics, 1991).

Professional Standards for Teaching Mathematics (Reston, VA: National Council of Teachers of Mathematics, 1991).

Reshaping School Mathematics: A Philosophy and Framework for Curriculum (Washington, DC: Mathematical Sciences Education Board and National Research Council, National Academy Press, 1990).

Everybody Counts: A Report to the Nation on the Future of Mathematic Education, Lynn Steen, editor (Washington, DC: National Research Council, National Academy Press, 1989).

[and] should employ problem-solving strategies such as identifying and using appropriate information. Their written solutions should be organized and presented both with supporting information and explanations of how they were achieved." Only 2 percent of the students were estimated to have reached the Advanced level of achievement. These students "should be able to solve complex and nonroutine real-world problems in all the NAEP content areas."

Eighth Grade: Attainment of Achievement Levels

The percentages of eighth-grade students performing at or above the Basic and Proficient levels increased from 1990 to 1992, although the apparent improvement at the Advanced level was not statistically significant. At the eighth grade, in 1992, 63 percent of the students were estimated to be at or above the Basic level of performance, with 37 percent estimated to be below the Basic level. Students at the Basic level "should exhibit evidence of conceptual and procedural understanding in the five NAEP content areas. This level of performance signifies an understanding of arithmetic -- including estimation -- on whole numbers, decimals, fractions, and percents." Twenty-five percent of the students were estimated to have reached the Proficient level of solid academic performance. These students "should apply mathematical concepts and procedures consistently to complex problems in the five NAEP content areas." Four percent of the eighth graders were estimated to have reached the Advanced level of superior performance in which the students "should be able to reach beyond the recognition, identification, and application of mathematical rules in order to generalize and synthesize concepts and principles in the five NAEP content areas."

Twelfth Grade: Attainment of Achievement Levels

Twelfth-grade students showed significant gains at the Basic level from 1990 to 1992. However, there were no statistically significant improvements in the percentages of students achieving at or above the Proficient or Advanced levels. At the twelfth grade, 64 percent of the students were estimated to be at or above the Basic level, with an estimated 36 percent falling below that level. Twelfth-grade students falling within the Basic range of the NAEP mathematics assessment "should demonstrate procedural and conceptual knowledge in solving problems in the five NAEP content areas." Sixteen percent of the students were estimated to have achieved the Proficient level of solid academic performance. Students at the Proficient level "should consistently integrate mathematical concepts and procedures to the solutions of more complex problems in the five NAEP content areas." Only 2 percent of the high-school seniors were estimated to have demonstrated the superior performance of the Advanced level, at which students "should consistently demonstrate the integration of procedural and conceptual knowledge and the synthesis of ideas in the five NAEP content areas."

For grades 4, 8, and 12, the percentages of students estimated to have met or exceeded the Proficient level were 18, 25, and 16 percent, respectively. The Proficient level is the level at which students "demonstrate competency over challenging subject matter and are well prepared for the next level of schooling." There are potentially many explanations for one-fourth or fewer of the students at any of the grades assessed reaching the Proficient level of achievement. One possibility is that students are simply not learning very much mathematics in school. This is consistent with such national reports as *A Nation at Risk*,[15] which warned of the mediocrity of our educational system. A second possible explanation is that students have not had the opportunity to learn the knowledge and skills covered in the NAEP assessment. If the content on the assessment is not generally taught in the U.S. curriculum, then students cannot be expected to perform well on the assessment. This may be especially true with the 1992 NAEP survey because it was focused on the curriculum and evaluation standards recommended by the NCTM. There is evidence from NCTM studies and NAEP indicating that the *NCTM Standards* have not been widely implemented in the nation's schools.[16] A third explanation for the students' poor performance may be that the achievement levels are simply very high. The achievement levels were set by NAGB using a broadly representative consensus process. There may be a large discrepancy between the high expectations of what students should know and be able to do compared to what they actually do know and are able to do.

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[15] The National Commission on Excellence in Education, *A Nation at Risk: The Imperative for Educational Reform* (Washington, DC: U.S. Department of Education, 1983).

[16] Horizon Research, Inc., *The Road to Reform in Mathematics Education: How far have we traveled?*, Results of a Pilot Study Conducted for the National Council of Teachers of Mathematics (Reston, VA: National Council of Teachers of Mathematics, 1992).

National Center for Education Statistics, *Data Compendium from the NAEP 1992 Mathematics Assessment for the Nation and the States* (Washington, DC: U.S. Department of Education, 1993).

Overall Mathematics Proficiency by Region

The regional results for nationally representative samples of students attending private as well as public schools are presented in TABLE 1.3. At all three grades assessed, in 1992, students in the Northeast, Central, and West had higher average proficiency than those in the Southeast. The national increase at grade 4 in overall average mathematics proficiency was reflected in each region except the West. At grade 8, there were gains in the Central and West, and at grade 12 students in the Southeast showed improvement in average proficiency.

Only one to five percent of the students across the regions in any of the three grades assessed were estimated to have attained the Advanced level, and this reflected essentially no change between 1990 and 1992.

At grade 4, the estimated percentages of students performing at or above the Proficient level were Northeast -- 24 percent, Central -- 21 percent, West -- 17 percent, and Southeast -- 12 percent. This represented a significant gain for the Central region between 1990 and 1992. Approximately two-thirds of the fourth graders in the Northeast and Central regions, 60 percent in the West, and 50 percent in the Southeast were estimated to have performed at the Basic level or beyond. Significantly fewer fourth graders in the Southeast than in other regions reached the Basic level, with one-half of the students classified as below Basic. Between 1990 and 1992, there were no statistically significant changes in the percentages of fourth graders performing at or above the Basic level for any of the four regions.

At grade 8, the only significant increase from 1990 to 1992 in percentages of students reaching any of the achievement levels was shown at the Proficient level in the Central region. In 1992, 30 percent of the eighth graders were estimated to have performed at or above the Proficient level in the Central region, 27 percent at or above the proficient level in the Northeast, 25 percent in the West, and 19 percent in the Southeast. Seventy-one percent of the eighth graders in the Central region, 62 to 63 percent in the Northeast and West, and 55 percent in the Southeast were estimated to have reached the Basic level (or better).

The results differed at grade 12, with students in the Southeast showing gains at the Proficient level. However, the estimated 11 percent performing at or above this level still lagged significantly behind the 18 to 19 percent classified as Proficient or above in the Northeastern and Central regions. Approximately 15 percent of the twelfth graders in the West achieved at or above the Proficient level. At grade 12, students performing at or above the Basic level included an estimated 70 percent in the Central region, 67 percent in the Northeast, 64 percent in the West, and 55 percent in the Southeast. Compared to about one-third of the students in other regions, 45 percent of the students in the Southeast were classified as below Basic.

TABLE 1.3 Average Mathematics Proficiency and Achievement Levels by Region, Grades 4, 8, and 12

	Assessment Years	Percentage of Students	Average Proficiency	Percentage of Students At or Above			Percentage Below Basic
				Advanced	Proficient	Basic	
Grade 4							
Northeast	**1992**	21(0.9)	223(2.0)>	3(0.9)	24(2.6)	65(2.8)	**35(2.8)**
	1990	22(1.0)	215(2.9)	2(0.9)	15(3.3)	56(4.1)	**44(4.1)**
Southeast	**1992**	24(0.9)	210(1.6)>	1(0.4)	12(1.3)	50(2.2)	**50(2.2)**
	1990	25(1.1)	205(2.1)	1(0.4)	9(1.6)	43(3.1)	**57(3.1)**
Central	**1992**	27(0.5)	223(1.9)>	2(0.5)	21(1.8)>	68(2.6)	**32(2.6)**
	1990	25(0.8)	216(1.7)	2(1.0)	14(1.5)	59(2.8)	**41(2.8)**
West	**1992**	28(0.7)	218(1.5)	2(0.7)	17(2.1)	60(2.1)	**40(2.1)**
	1990	28(0.8)	216(2.4)	2(0.7)	15(2.3)	57(3.2)	**43(3.2)**
Grade 8							
Northeast	**1992**	22(0.8)	269(2.7)	5(1.1)	27(2.8)	62(3.4)	**38(3.4)**
	1990	20(0.9)	270(2.8)	3(0.8)	25(2.6)	66(3.4)	**34(3.4)**
Southeast	**1992**	25(0.7)	260(1.4)	2(0.5)	19(1.3)	55(1.5)	**45(1.5)**
	1990	25(1.1)	255(2.5)	2(0.5)	15(2.0)	50(2.9)	**50(2.9)**
Central	**1992**	25(0.6)	274(1.9)>	3(0.6)	30(2.6)>	71(2.4)	**29(2.4)**
	1990	24(0.8)	266(2.3)	2(0.6)	21(2.0)	63(2.3)	**37(2.3)**
West	**1992**	28(0.7)	268(2.0)>	4(1.1)	25(1.9)	63(2.5)	**37(2.5)**
	1990	30(1.0)	261(2.6)	3(0.7)	18(2.3)	57(2.7)	**43(2.7)**
Grade 12							
Northeast	**1992**	24(0.6)	302(1.5)	3(0.7)	19(1.6)	67(2.0)	**33(2.0)**
	1990	24(1.2)	300(2.3)	3(0.9)	18(2.0)	65(2.9)	**35(2.9)**
Southeast	**1992**	24(0.6)	291(1.4)>	1(0.3)	11(1.2)>	55(2.1)	**45(2.1)**
	1990	20(1.1)	284(2.2)	1(0.4)	6(1.0)	48(3.8)	**52(3.8)**
Central	**1992**	25(0.6)	303(1.8)	2(0.4)	18(1.6)	70(2.6)	**30(2.6)**
	1990	27(0.8)	297(2.6)	2(0.6)	14(2.2)	64(3.6)	**36(3.6)**
West	**1992**	27(0.9)	298(1.7)	2(0.6)	15(2.0)	64(1.8)	**36(1.8)**
	1990	29(1.2)	294(2.6)	2(0.9)	13(2.4)	58(3.4)	**42(3.4)**

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent confidence that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details). Percentages may not total 100 percent due to rounding error.

Overall Mathematics Achievement for the States

As shown in TABLE 1.4, the results for the states tend to parallel the findings for the four regions reported by NAEP according to the regional location of the state.[17] It should be noted that for comparisons between the nation or the regions and the participating states, the national and regional data provided in TABLE 1.4 should be used. Because the national assessment included both public- and private-school students, in contrast to the state assessments, which only included students attending public schools, the national and regional results provided together with the state data are based only on students attending **public** schools. For this reason, the national and regional data in TABLE 1.4 may by slightly different from those presented previously in this chapter.

For most jurisdictions participating in NAEP's Trial State Assessment Program, the majority of the fourth graders performed at or above the Basic level. However, it is estimated that the achievement of more than half of the fourth graders was below the Basic level in Alabama, Arkansas, California, the District of Columbia, Louisiana, Mississippi, South Carolina, Tennessee, and Guam. More than one-fourth of the students in grade 4 were estimated to be at or above the Proficient level in Iowa, Maine, Minnesota, and New Hampshire. Very few fourth graders in any state -- approximately 0 to 4 percent -- attained the level indicating Advanced performance.

At grade 8, the results were similar, with the largest proportion of students performing at or above the Basic level, but relatively smaller percentages of them performing at or above the Proficient level. The jurisdictions with more than half of their eighth graders estimated to be below the Basic level were Alabama, the District of Columbia, Louisiana, Mississippi, Guam, and the Virgin Islands. Across jurisdictions, from 1 to 37 percent of the eighth graders performed at or above the Proficient level. Still, the percentages of students estimated to be at or above the Advanced level remained quite small, from 0 to 6 percent.

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[17] Appendix D provides information about the assignment of states to the four regions -- Northeast, Southeast, Central, and West. It should be noted that the regional results shown in the state tables are based on the nationally and regionally representative samples of public-school students who were assessed as part of the national program, and not from an aggregate of the separate state-by-state samples. Using the regional results from the national program is necessary because the voluntary nature of the Trial State Program did not guarantee representative regional results from the aggregated data across states, since not all states in all regions participated.

TABLE 1.4 | Overall Average Mathematics Proficiency and Achievement Levels

PUBLIC SCHOOLS	Grade 4 - 1992				
	Average Proficiency	Percentage of Students At or Above Advanced	Percentage of Students At or Above Proficient	Percentage of Students At or Above Basic	Percentage of Students Below Basic
NATION	217 (0.8)	2 (0.3)	18 (1.1)	59 (1.1)	41 (1.1)
Northeast	223 (2.1)	3 (0.8)	23 (2.9)	64 (3.0)	36 (3.0)
Southeast	209 (1.9)	1 (0.4)	11 (1.4)	48 (2.5)	52 (2.5)
Central	222 (2.2)	2 (0.6)	20 (2.1)	66 (3.2)	34 (3.2)
West	217 (1.6)	2 (0.7)	17 (2.1)	59 (2.2)	41 (2.2)
STATES					
Alabama	207 (1.6)	1 (0.2)	10 (1.3)	45 (2.2)	55 (2.2)
Arizona	214 (1.1)	1 (0.3)	13 (0.9)	55 (1.7)	45 (1.7)
Arkansas	209 (0.9)	1 (0.2)	10 (0.8)	49 (1.3)	51 (1.3)
California	207 (1.6)	2 (0.5)	13 (1.2)	48 (2.0)	52 (2.0)
Colorado	220 (1.0)	2 (0.4)	18 (1.1)	62 (1.4)	38 (1.4)
Connecticut	226 (1.2)	4 (0.6)	25 (1.4)	69 (1.5)	31 (1.5)
Delaware	217 (0.8)	2 (0.4)	17 (0.8)	56 (1.0)	44 (1.0)
Dist. Columbia	191 (0.5)	1 (0.2)	6 (0.3)	25 (1.0)	75 (1.0)
Florida	212 (1.5)	2 (0.4)	14 (1.4)	53 (2.0)	47 (2.0)
Georgia	214 (1.3)	2 (0.4)	16 (1.2)	55 (1.7)	45 (1.7)
Hawaii	213 (1.3)	2 (0.4)	15 (1.0)	54 (1.8)	46 (1.8)
Idaho	220 (1.0)	1 (0.3)	16 (1.1)	64 (1.7)	36 (1.7)
Indiana	220 (1.1)	2 (0.3)	16 (1.1)	62 (1.6)	38 (1.6)
Iowa	229 (1.1)	3 (0.5)	27 (1.3)	74 (1.4)	26 (1.4)
Kentucky	214 (1.0)	1 (0.5)	13 (1.1)	53 (1.5)	47 (1.5)
Louisiana	203 (1.4)	1 (0.2)	8 (0.8)	41 (2.0)	59 (2.0)
Maine	231 (1.0)	3 (0.6)	28 (1.5)	76 (1.3)	24 (1.3)
Maryland	216 (1.3)	3 (0.4)	19 (1.2)	57 (1.6)	43 (1.6)
Massachusetts	226 (1.2)	3 (0.5)	24 (1.5)	70 (1.6)	30 (1.6)
Michigan	219 (1.8)	2 (0.5)	19 (1.7)	62 (2.2)	38 (2.2)
Minnesota	227 (0.9)	3 (0.5)	27 (1.2)	72 (1.4)	28 (1.4)
Mississippi	200 (1.1)	0 (0.1)	7 (0.7)	37 (1.3)	63 (1.3)
Missouri	221 (1.2)	2 (0.3)	19 (1.3)	64 (1.6)	36 (1.6)
Nebraska	224 (1.3)	3 (0.5)	23 (1.7)	68 (1.8)	32 (1.8)
New Hampshire	229 (1.2)	3 (0.6)	26 (1.7)	74 (1.6)	26 (1.6)
New Jersey	226 (1.5)	3 (0.7)	25 (1.6)	70 (2.1)	30 (2.1)
New Mexico	212 (1.5)	1 (0.4)	11 (1.3)	52 (1.9)	48 (1.9)
New York	217 (1.3)	2 (0.3)	17 (1.3)	59 (1.9)	41 (1.9)
North Carolina	211 (1.1)	2 (0.4)	13 (0.9)	52 (1.6)	48 (1.6)
North Dakota	228 (0.8)	2 (0.3)	23 (1.1)	74 (1.2)	26 (1.2)
Ohio	217 (1.2)	2 (0.3)	17 (1.1)	59 (1.7)	41 (1.7)
Oklahoma	219 (1.0)	1 (0.4)	14 (1.1)	62 (1.6)	38 (1.6)
Pennsylvania	223 (1.4)	3 (0.5)	23 (1.5)	66 (1.9)	34 (1.9)
Rhode Island	214 (1.6)	2 (0.4)	14 (1.2)	56 (2.2)	44 (2.2)
South Carolina	211 (1.1)	1 (0.3)	13 (1.1)	49 (1.5)	51 (1.5)
Tennessee	209 (1.4)	1 (0.2)	10 (1.0)	49 (2.1)	51 (2.1)
Texas	217 (1.3)	2 (0.5)	16 (1.3)	58 (1.7)	42 (1.7)
Utah	223 (1.0)	2 (0.3)	20 (1.1)	67 (1.6)	33 (1.6)
Virginia	220 (1.3)	3 (0.7)	19 (1.6)	60 (1.4)	40 (1.4)
West Virginia	214 (1.1)	1 (0.3)	13 (1.0)	54 (1.6)	46 (1.6)
Wisconsin	228 (1.1)	3 (0.5)	25 (1.4)	72 (1.3)	28 (1.3)
Wyoming	224 (1.0)	2 (0.3)	19 (1.2)	70 (1.4)	30 (1.4)
TERRITORY					
Guam	191 (0.8)	0 (0.1)	5 (0.5)	28 (1.2)	72 (1.2)

The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent.

TABLE 1.4 | Overall Average Mathematics Proficiency and Achievement Levels (continued)

	Grade 8 - 1992					Grade 8 - 1990				
PUBLIC SCHOOLS	**Average Proficiency**	**Percentage of Students At or Above Advanced**	**Percentage of Students At or Above Proficient**	**Percentage of Students At or Above Basic**	**Percentage of Students Below Basic**	**Average Proficiency**	**Percentage of Students At or Above Advanced**	**Percentage of Students At or Above Proficient**	**Percentage of Students At or Above Basic**	**Percentage of Students Below Basic**
NATION	266 (1.0)	3 (0.5)	23 (1.1)	61 (1.2)	39 (1.2)	262 (1.4)	2 (0.4)	19 (1.2)	57 (1.4)	43 (1.4)
Northeast	267 (3.0)	5 (1.4)	25 (3.0)	59 (3.9)	41 (3.9)	270 (3.3)	3 (1.0)	26 (3.1)	65 (3.7)	35 (3.7)
Southeast	258 (1.2)	1 (0.4)	16 (1.0)	53 (1.6)	47 (1.6)	254 (2.6)	2 (0.6)	15 (2.2)	48 (3.0)	52 (3.0)
Central	273 (2.2)	3 (0.7)	28 (3.0)	70 (2.8)	30 (2.8)	265 (2.3)	2 (0.6)	20 (2.1)	61 (2.5)	39 (2.5)
West	267 (2.1)	4 (1.1)	24 (2.1)	62 (2.7)	38 (2.7)	261 (2.6)	3 (0.7)	19 (2.5)	57 (2.6)	43 (2.6)
STATES										
Alabama	251 (1.7)	1 (0.3)	12 (1.1)	44 (2.0)	56 (2.0)	253 (1.1)	1 (0.2)	12 (0.8)	47 (1.6)	53 (1.6)
Arizona	265 (1.3) >	2 (0.4)	19 (1.4)	61 (1.8) >	39 (1.8) <	260 (1.3)	1 (0.4)	16 (1.1)	55 (1.8)	45 (1.8)
Arkansas	255 (1.2)	1 (0.3)	13 (1.0)	50 (1.7)	50 (1.7)	256 (0.9)	1 (0.2)	12 (1.0)	51 (1.3)	49 (1.3)
California	260 (1.7)	3 (0.7)	20 (1.4)	55 (2.0)	45 (2.0)	256 (1.3)	2 (0.4)	16 (1.3)	51 (1.6)	49 (1.6)
Colorado	272 (1.1) >	2 (0.5)	26 (1.3) >	69 (1.3) >	31 (1.3) <	267 (0.9)	2 (0.4)	22 (1.0)	64 (1.1)	36 (1.1)
Connecticut	273 (1.1) >	4 (0.6)	30 (1.1) >	69 (1.4)	31 (1.4)	270 (1.0)	4 (0.4)	26 (1.1)	66 (1.3)	34 (1.3)
Delaware	262 (1.0)	3 (0.4)	18 (1.1)	57 (1.2)	43 (1.2)	261 (0.9)	2 (0.5)	19 (0.9)	55 (1.3)	45 (1.3)
Dist. Columbia	234 (0.9) >	1 (0.2)	6 (1.0)	26 (1.3) >	74 (1.3) <	231 (0.9)	1 (0.2)	4 (0.7)	21 (1.0)	79 (1.0)
Florida	259 (1.5)	2 (0.4)	18 (1.3)	55 (1.9)	45 (1.9)	255 (1.3)	2 (0.4)	15 (1.0)	49 (1.4)	51 (1.4)
Georgia	259 (1.2)	1 (0.3)	16 (1.0)	53 (1.5)	47 (1.5)	259 (1.3)	3 (0.5)	17 (1.3)	53 (1.5)	47 (1.5)
Hawaii	257 (0.9) »	2 (0.4)	16 (0.8)	51 (1.2) »	49 (1.2) «	251 (0.8)	2 (0.4)	14 (0.8)	45 (1.0)	55 (1.0)
Idaho	274 (0.8) >	3 (0.4)	27 (1.2)	73 (1.1)	27 (1.1)	271 (0.8)	2 (0.4)	23 (1.4)	70 (1.2)	30 (1.2)
Indiana	269 (1.2)	3 (0.4)	24 (1.3)	66 (1.5)	34 (1.5)	267 (1.1)	3 (0.6)	21 (1.2)	63 (1.6)	37 (1.6)
Iowa	283 (1.0) »	5 (0.7)	37 (1.4) >	81 (1.2) >	19 (1.2) <	278 (1.1)	4 (0.5)	30 (1.5)	76 (1.1)	24 (1.1)
Kentucky	261 (1.1) >	2 (0.4)	17 (1.1)	57 (1.3) >	43 (1.3) <	257 (1.2)	1 (0.2)	14 (0.9)	51 (1.8)	49 (1.8)
Louisiana	249 (1.7)	1 (0.2)	10 (1.2)	42 (2.0)	58 (2.0)	246 (1.2)	1 (0.2)	8 (1.0)	39 (1.7)	61 (1.7)
Maine	278 (1.0)	4 (0.6)	31 (1.9)	77 (1.3)	23 (1.3)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	264 (1.3)	4 (0.6)	24 (1.3)	59 (1.5)	41 (1.5)	261 (1.4)	3 (0.6)	20 (1.2)	56 (1.7)	44 (1.7)
Massachusetts	272 (1.1)	3 (0.5)	28 (1.4)	68 (1.5)	32 (1.5)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	267 (1.4)	3 (0.5)	23 (1.7)	63 (1.6)	37 (1.6)	264 (1.2)	2 (0.4)	20 (1.4)	60 (1.4)	40 (1.4)
Minnesota	282 (1.0) »	6 (0.7) >	37 (1.2) »	79 (1.2) >	21 (1.2) <	275 (0.9)	4 (0.4)	29 (1.2)	74 (1.3)	26 (1.3)
Mississippi	246 (1.2)	0 (0.2)	8 (0.8)	38 (1.5)	62 (1.5)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	270 (1.2)	3 (0.4)	24 (1.3)	68 (1.6)	32 (1.6)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	277 (1.1)	4 (0.5)	32 (1.9)	75 (1.2)	25 (1.2)	276 (1.0)	4 (0.6)	30 (1.4)	74 (1.1)	26 [illegible]
New Hampshire	278 (1.0) »	3 (0.6)	30 (1.5) >	77 (1.0) >	23 (1.0) <	273 (0.9)	3 (0.5)	25 (1.2)	71 (1.6)	29 (1.6)
New Jersey	271 (1.6)	4 (0.6)	28 (1.4)	67 (1.8)	33 (1.8)	270 (1.1)	4 (0.5)	2[illegible] (1.3)	65 (1.6)	35 (1.6)
New Mexico	259 (0.9) >	1 (0.3)	14 (1.0)	54 (1.4)	46 (1.4)	256 (0.7)	1 (0.3)	13 (0.9)	51 (1.3)	49 (1.3)
New York	266 (2.1)	4 (0.6)	24 (1.6) >	62 (2.3)	38 (2.3)	261 (1.4)	3 (0.5)	19 (1.0)	57 (1.7)	44 (1.7)
North Carolina	258 (1.2) »	1 (0.3)	15 (1.0) >	53 (1.5) »	47 (1.5) «	250 (1.1)	1 (0.4)	11 (0.8)	44 (1.4)	56 (1.4)
North Dakota	283 (1.2)	4 (0.6)	36 (1.7)	82 (1.3)	18 (1.3)	281 (1.2)	4 (0.6)	34 (2.0)	81 (1.6)	19 (1.6)
Ohio	267 (1.5)	2 (0.5)	22 (1.4)	64 (2.0)	36 (2.0)	264 (1.0)	2 (0.3)	19 (1.2)	60 (1.4)	40 (1.4)
Oklahoma	267 (1.2) >	2 (0.3)	21 (1.2) >	65 (2.0)	35 (2.0)	263 (1.3)	2 (0.5)	17 (1.3)	59 (1.6)	41 (1.6)
Pennsylvania	271 (1.5)	3 (0.7)	26 (1.5)	67 (1.7)	33 (1.7)	266 (1.6)	2 (0.4)	21 (1.5)	63 (2.0)	37 (2.0)
Rhode Island	265 (0.7) »	2 (0.3)	20 (1.3)	62 (1.2) »	38 (1.2) «	260 (0.6)	2 (0.3)	18 (1.0)	55 (0.9)	45 (0.9)
South Carolina	260 (1.0)	2 (0.5)	18 (1.1)	53 (1.2)	47 (1.2)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	258 (1.4)	1 (0.4)	15 (1.2)	53 (1.8)	47 (1.8)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	264 (1.3) >	4 (0.6)	21 (1.4) >	58 (1.5) >	42 (1.5) <	258 (1.4)	2 (0.4)	16 (1.0)	52 (1.7)	48 (1.7)
Utah	274 (0.7)	3 (0.5)	27 (1.1)	72 (1.3)	28 (1.3)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	267 (1.2)	3 (0.5)	23 (1.2)	62 (1.6)	38 (1.6)	264 (1.5)	4 (0.8)	21 (1.6)	58 (1.6)	42 (1.6)
West Virginia	258 (1.0)	1 (0.2)	13 (0.9)	53 (1.5)	47 (1.5)	256 (1.0)	1 (0.2)	12 (0.9)	49 (1.2)	51 (1.2)
Wisconsin	277 (1.5)	4 (0.6)	32 (1.4)	76 (1.9)	24 (1.9)	274 (1.3)	4 (0.5)	29 (1.5)	72 (1.7)	28 (1.7)
Wyoming	274 (0.9) >	2 (0.5)	26 (1.0)	73 (1.3)	27 (1.3)	272 (0.7)	2 (0.3)	24 (1.0)	71 (1.3)	29 (1.3)
TERRITORIES										
Guam	234 (1.0) >	1 (0.2)	7 (0.7)	30 (1.4)	70 (1.4)	232 (0.7)	1 (0.2)	5 (0.6)	27 (1.0)	73 (1.0)
Virgin Islands	222 (1.1) >	0 (0.1)	1 (0.3)	13 (1.0)	87 (1.0)	219 (0.9)	0 (0.1)	1 (0.4)	10 (1.1)	90 (1.1)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated. (xxx) Did not participate in the 1990 Trial State Assessment.

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Trends in State Performance at Grade 8

As depicted in TABLE 1.4, of the 37 jurisdictions participating in both the 1992 and 1990 Trial State Assessment Programs in eighth-grade mathematics, five had significantly higher average proficiency in 1992 -- Hawaii, Minnesota, New Hampshire, North Carolina, and Rhode Island. This is in the context of stringent statistical criteria taking into account the numerous possible comparisons across all 37 jurisdictions, the four regions of the country, and the nation (as contained in TABLE 1.3 and designated by the symbol >>).[18]

In considering results for individual states, significant improvements also were found in Arizona, Colorado, Connecticut, the District of Columbia, Idaho, Iowa, Kentucky, New Mexico, Oklahoma, Texas, Wyoming, Guam, and the Virgin Islands (designated by the symbol >). Taken together, significant improvement was noted for 18 of the 37 participants.

The graphic display of these changes presented in FIGURE 1.4 indicates gains for some jurisdictions in all regions of the country. However, there seems to be a particular concentration of contiguous states showing improvement in what might be considered the Southwest/West/Rocky Mountain region -- Idaho, Wyoming, Colorado, Arizona, New Mexico, Texas, and Oklahoma.

For Arizona, the District of Columbia, Hawaii, Kentucky, and Rhode Island, the significant improvements in overall mathematics proficiency resulted from higher proportions of students achieving the Basic level than did in 1990. In Colorado, Iowa, New Hampshire, North Carolina, and Texas, there were gains at both the Basic and Proficient levels. In Minnesota, there was improvement at all three achievement levels.

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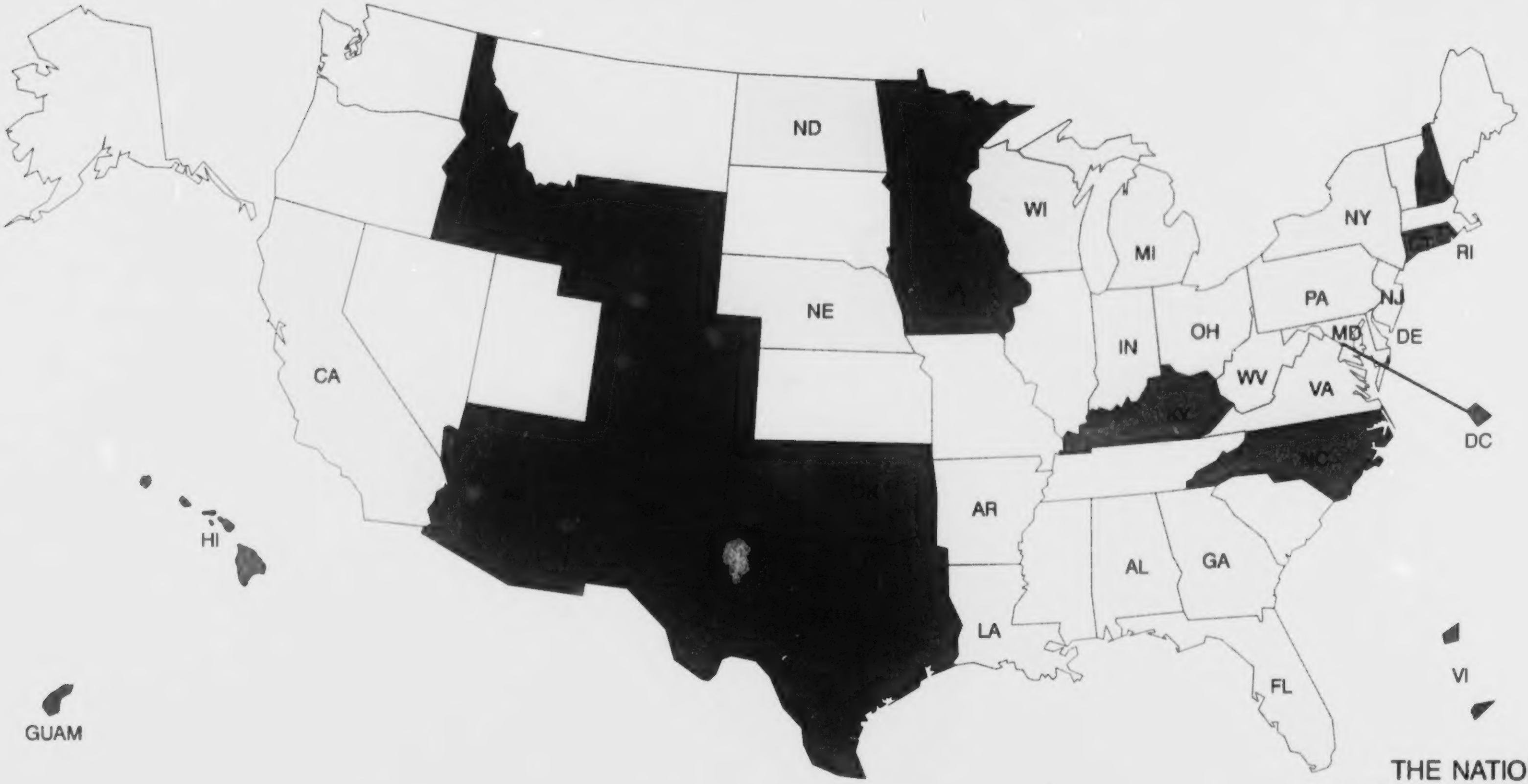
[18] Stringent criteria are used in comparing results across jurisdictions because of the extremely large number of comparisons involved. So many possible comparisons increases the likelihood of seeming to find differences when none exist. In considering results for a single state, fewer comparisons are involved and less stringent criteria can be used for determining statistically significant differences. (Please see Appendix D for further details.)

Figure 1.4

The NAEP Trial State Assessment

Comparisons of Overall Mathematics Proficiency at Grade 8

1992 vs. 1990


ND
WI
MI
NY
RI
NE
PA
NJ
MD
DE
IN
OH
CA
WV
VA
KY
DC
NC
AR
HI
AL
GA
LA
FL
VI
GUAM

■ State was significantly higher in 1992 than 1990

□ No statistically significant difference from 1990 to 1992

□ State did not participate in 1990 or 1992

NOTE: No state was significantly lower in 1992 than 1990

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1992 Trial State Assessment

Comparisons Among States Based on Average Proficiency

FIGURES 1.5 and 1.6 are provided to help interpret differences in the average proficiencies across states for grades 4 and 8 in 1992. These figures provide a method for making appropriate comparisons in average overall mathematics proficiency across the states, territories, and the District of Columbia. The figures show whether or not the differences in average performance between pairs of states are statistically significant.[19]

For example, in FIGURE 1.5, although the average proficiencies in the fourth-grade appear to be different between Maine (231) and Nebraska (224), they in fact are **not** statistically different. It needs to be understood, however, that the computations underlying FIGURES 1.5 and 1.6 take the confidence intervals or degree of sampling error associated with the estimates of average proficiency into account, as well as the estimates of average proficiency themselves. Interestingly, then, the difference in average proficiency between Maine (231) and Wyoming (224) is statistically significant, even though Nebraska and Wyoming had the same average proficiency. The confidence interval for Nebraska was larger than that of Wyoming, and Nebraska's confidence interval overlapped with Maine's whereas Wyoming's did not.

As an example of how to read FIGURES 1.5 and 1.6, let us say we are attempting to compare the state of Texas to all other states, territories, and the District of Columbia. Reading vertically down the FIGURE 1.5 column labeled Texas, we see that, on average, students in Texas scored lower than did students in all the states listed from Maine through Wyoming (the dark grey shaded states), about the same, on average, as students in the states listed from Pennsylvania through Tennessee (the white shaded states), and better, on average, than students in all the states from Arkansas to Guam (the light grey shaded states).

From FIGURES 1.5 and 1.6 we see that in 1992 the cluster of highest performing states for the fourth-grade assessment consisted of Maine, Iowa, New Hampshire, Wisconsin, North Dakota, Minnesota, New Jersey, Connecticut, Massachusetts, and Nebraska. For the eighth grade, the highest performing states were Iowa, North Dakota, Minnesota, Maine, New Hampshire, Wisconsin, and Nebraska.

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[19] The significance tests in FIGURES 1.5 and 1.6 are based on a Bonferroni procedure for multiple comparisons that holds to 5 percent across all possible comparisons the probability of erroneously declaring the means of any two states to be different when they are not.

For the eighth grade, the cluster of lowest performing states consisted of Alabama, Louisiana, and Mississippi. At the fourth grade, Alabama, Louisiana, Mississippi, and California were the lowest performing states. At both the fourth and eighth grades, Guam and the District of Columbia scored significantly lower than all the states, as did the Virgin Islands at grade 8.

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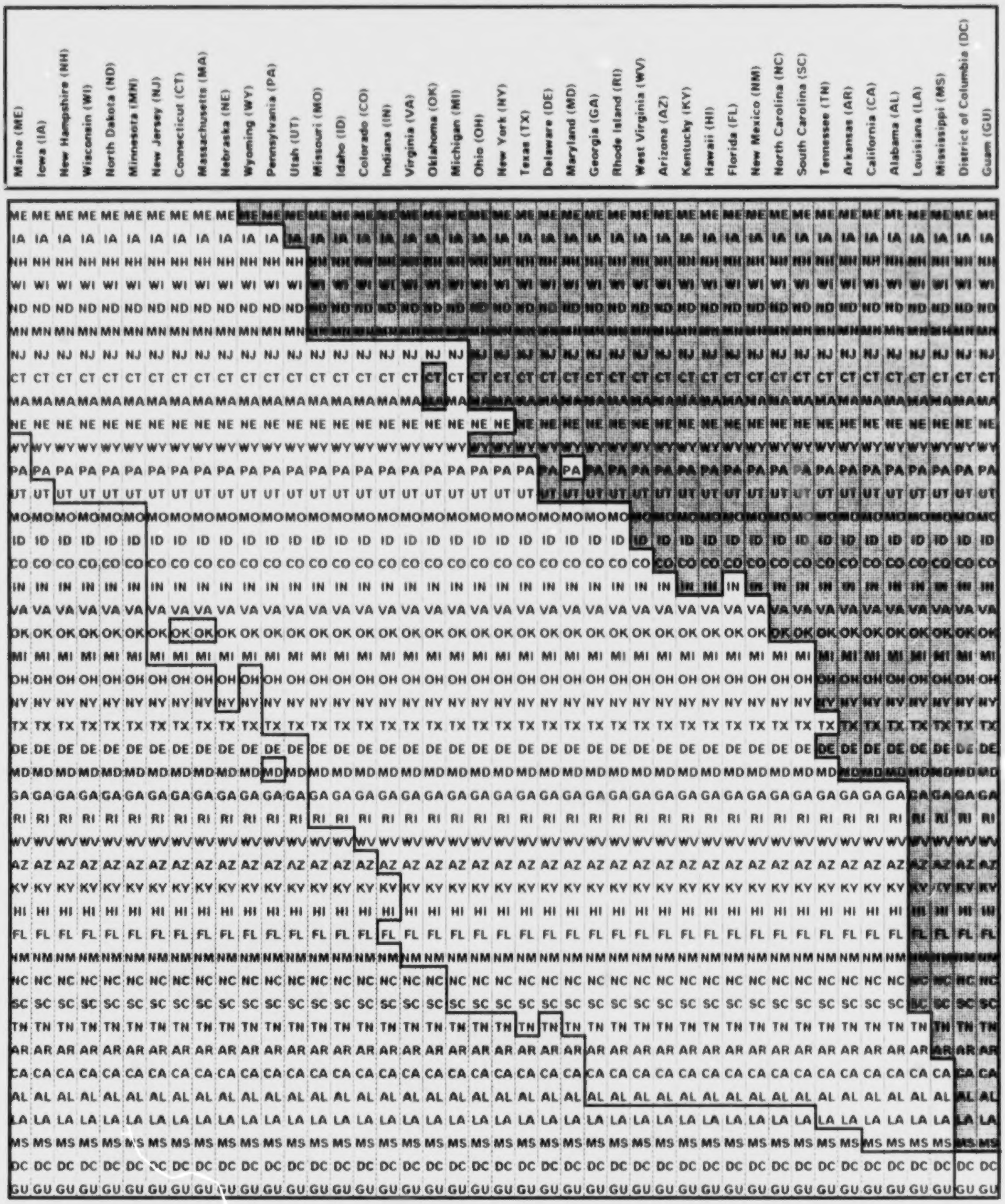
FIGURE 1.5 Comparisons of Overall Mathematics Average Proficiency 1992 Grade 4

INSTRUCTIONS: Read *down* the column directly under a state name listed in the heading at the top of the chart. Match the shading intensity surrounding a state postal abbreviation to the key below to determine whether the average mathematics performance of this state is higher than, the same as, or lower than the state in the column heading.


Maine (ME)
Iowa (IA)
New Hampshire (NH)
Wisconsin (WI)
North Dakota (ND)
Minnesota (MN)
New Jersey (NJ)
Connecticut (CT)
Massachusetts (MA)
Nebraska (NE)
Wyoming (WY)
Pennsylvania (PA)
Utah (UT)
Missouri (MO)
Idaho (ID)
Colorado (CO)
Indiana (IN)
Virginia (VA)
Oklahoma (OK)
Michigan (MI)
Ohio (OH)
New York (NY)
Texas (TX)
Delaware (DE)
Maryland (MD)
Georgia (GA)
Rhode Island (RI)
West Virginia (WV)
Arizona (AZ)
Kentucky (KY)
Hawaii (HI)
Florida (FL)
New Mexico (NM)
North Carolina (NC)
South Carolina (SC)
Tennessee (TN)
Arkansas (AR)
California (CA)
Alabama (AL)
Louisiana (LA)
Mississippi (MS)
District of Columbia (DC)
Guam (GU)
ME IA NH WI ND MN NJ CT MA NE WY PA UT MO ID CO IN VA OK MI OH NY TX DE MD GA RI WV AZ KY HI FL NM NC SC TN AR CA AL LA MS DC GU

▨ State has statistically significantly higher average proficiency than the state listed at the top of the chart.

☐ No statistically significant difference from the state listed at the top of the chart.

☐ State has statistically significantly lower average proficiency than the state listed at the top of the chart.

The between state comparisons take into account sampling and measurement error and that each state is being compared with every other state. Significance is determined by an application of the Bonferroni procedure based on 946 comparisons by comparing the difference between the two means with four times the square root of the sum of the squared standard errors.

FIGURE 1.6 | Comparisons of Overall Mathematics Average Proficiency 1992 Grade 8

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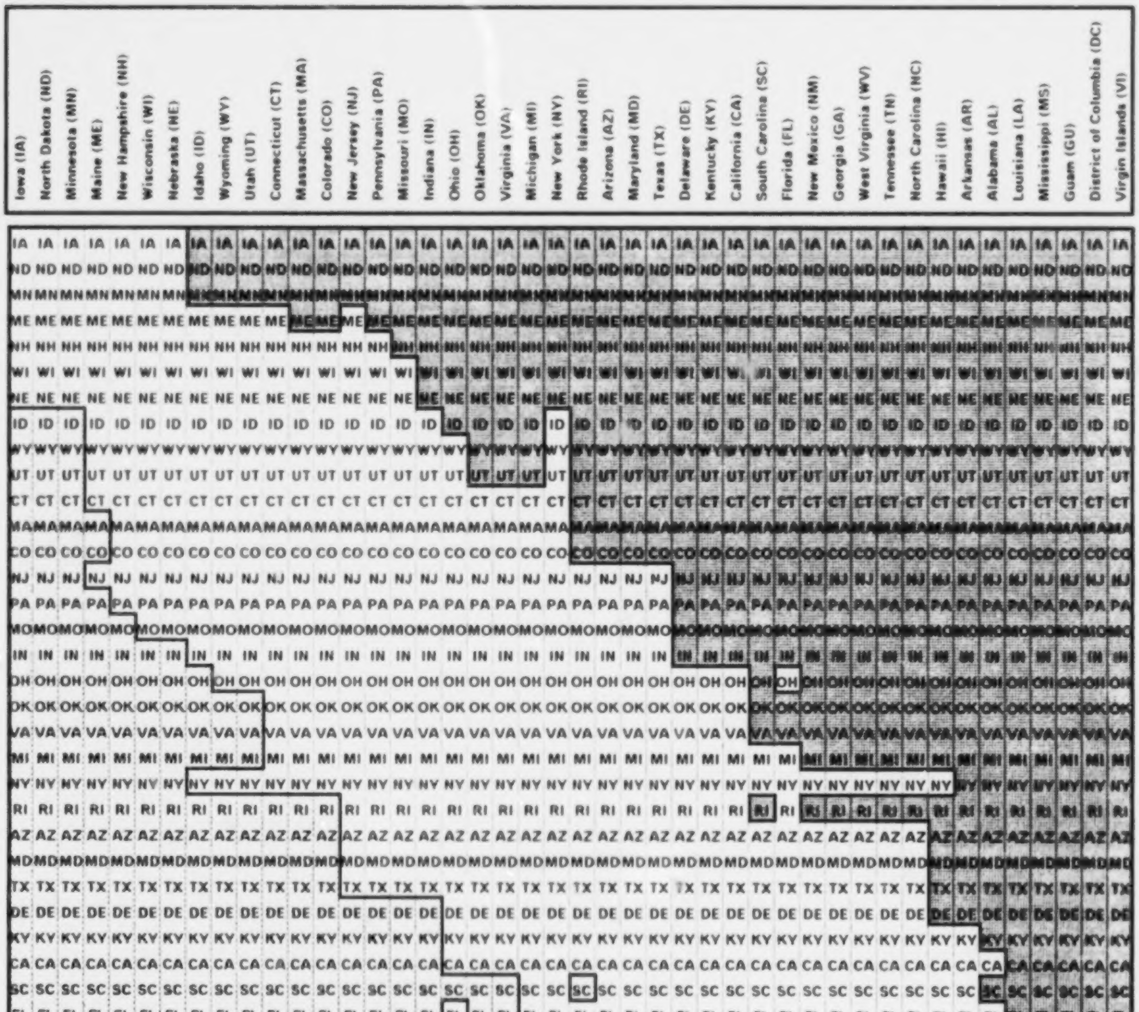
INSTRUCTIONS: Read *down* the column directly under a state name listed in the heading at the top of the chart. Match the shading intensity surrounding a state postal abbreviation to the key below to determine whether the average mathematics performance of this state is higher than, the same as, or lower than the state in the column heading.



▨ State has statistically significantly higher average proficiency than the state listed at the top of the chart.

☐ No statistically significant difference from the state listed at the top of the chart.

☐ State has statistically significantly lower average proficiency than the state listed at the top of the chart.

The between state comparisons take into account sampling and measurement error and that each state is being compared with every other state. Significance is determined by an application of the Bonferroni procedure based on 946 comparisons by comparing the difference between the two means with four times the square root of the sum of the squared standard errors.

Percentiles of Overall Mathematics Achievement for the Nation and the States

The national percentiles of the distributions of overall mathematics proficiency shown in TABLE 1.5 illustrate the extent of variation within each of the three grades assessed. For example, the range between the 5th and 95th percentiles of performance within each grade exceeded the range across the grades at any one percentile.

TABLE 1.5 Percentiles of Overall Mathematics Proficiency, Grades 4, 8, and 12

Grades	Assessment Years	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
4	1992	162(1.1)	175(0.9)	197(1.0)>	220(1.0)>	241(1.2)>	259(0.8)>	269(1.5)
	1990	159(1.9)	171(1.6)	193(1.0)	214(1.1)	235(1.1)	253(1.5)	264(1.7)
8	1992	206(1.9)	220(0.9)	242(1.3)	268(1.4)	294(0.9)>	315(1.0)>	326(1.8)>
	1990	201(2.3)	215(2.2)	239(1.8)	264(1.2)	288(1.1)	307(1.9)	319(1.6)
12	1992	240(1.9)>	253(1.2)>	275(1.4)	300(1.2)	323(1.3)	343(1.0)	354(1.3)
	1990	233(1.6)	247(1.0)	270(1.3)	296(1.5)	319(1.4)	339(1.6)	350(3.1)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated proficiencies appear in parentheses. It can be said with 95 percent confidence that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details).

The changes between 1990 and 1992 show that not only did students at all three grades improve on average, but they also had significant increases at various percentiles across the range of achievement. At grade 4, increases were noted through most of the upper 75 percent of the distribution (25th, 50th, 75th, and 90th percentiles). At grade 8, gains were found for the top 25 percent of the distribution -- 75th, 90th, and 95th percentiles. At grade 12, the improvement was found in the lower end of the distribution at the 5th and 10th percentiles.

The improvements between assessments are encouraging. However, placing the percentile results in the context of the achievement levels set by the Board indicates that performance would need to improve substantially to meet those expectations. The differences between the 10th percentiles and the cutpoints for the Basic level are similar in magnitude to the difference in average proficiency between grade 8 and grade 12 (about 30 scale points). This magnitude is the same for the differences between the 50th percentiles and the lower boundaries of the Proficient level. Large gains would be required before half the students at each grade attained the Proficient level, which indicates competency over challenging subject matter.

The percentile distributions in TABLE 1.6 illustrate the extent of variation in assessment results at the state level at grades 4 and 8. At grade 8, the data are presented for both 1992 and 1990. The same information is portrayed graphically in FIGURES 1.7 through 1.9. There were considerable differences in achievement between the higher- and lower-performing states. For example, performance at the 90th percentile in some states and territories was comparable to performance at the 75th percentile in other states. The variation within states, however, tended to exceed the variation in average performance across states.

Several states showed excellent progress in improving achievement at grade 8 across the range of the distribution, especially Minnesota and North Carolina. Hawaii showed significant gains in the lower portion of the distribution, as did Rhode Island.

TABLE 1.6 | Percentiles of Overall Mathematics Proficiency

PUBLIC SCHOOLS	Grade 4 - 1992							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	217 (0.8)	161 (1.5)	174 (0.7)	196 (1.0)	219 (0.9)	240 (1.3)	259 (1.1)	269 (2.0)
Northeast	223 (2.1)	165 (3.1)	178 (3.1)	200 (2.6)	225 (3.4)	246 (3.4)	264 (3.8)	274 (3.0)
Southeast	209 (1.9)	154 (2.7)	166 (2.0)	186 (3.0)	209 (2.0)	231 (2.0)	250 (2.3)	261 (5.6)
Central	222 (2.2)	168 (5.8)	182 (3.6)	202 (3.3)	223 (2.7)	243 (2.8)	260 (2.0)	270 (2.5)
West	217 (1.6)	161 (1.6)	173 (2.1)	195 (2.2)	219 (2.1)	240 (2.2)	258 (2.5)	268 (2.6)
STATES								
Alabama	207 (1.6)	154 (2.5)	165 (1.7)	184 (1.5)	207 (2.4)	230 (1.7)	249 (1.8)	259 (3.4)
Arizona	214 (1.1)	160 (2.1)	172 (2.1)	193 (1.7)	215 (1.3)	236 (1.3)	253 (2.3)	264 (1.0)
Arkansas	209 (0.9)	156 (2.1)	167 (1.3)	187 (1.1)	210 (1.3)	230 (1.0)	248 (1.5)	258 (1.7)
California	207 (1.6)	144 (3.1)	158 (2.4)	183 (2.7)	209 (1.3)	233 (1.5)	253 (1.9)	265 (3.1)
Colorado	220 (1.0)	166 (1.7)	179 (1.7)	200 (1.0)	221 (1.4)	241 (1.4)	259 (1.4)	270 (1.0)
Connecticut	226 (1.2)	171 (2.7)	184 (2.2)	205 (1.6)	227 (1.7)	248 (1.7)	266 (1.3)	275 (2.5)
Delaware	217 (0.8)	163 (1.6)	175 (1.5)	194 (1.0)	216 (1.0)	239 (1.5)	259 (1.4)	270 (2.5)
Dist. Columbia	191 (0.5)	141 (1.0)	152 (0.7)	169 (0.7)	190 (0.7)	211 (0.9)	233 (2.2)	250 (1.6)
Florida	212 (1.5)	156 (1.9)	170 (2.5)	191 (2.0)	214 (1.8)	234 (1.4)	254 (2.6)	264 (2.5)
Georgia	214 (1.3)	159 (2.0)	171 (2.0)	192 (1.2)	215 (1.3)	237 (1.7)	257 (2.0)	267 (2.6)
Hawaii	213 (1.3)	155 (1.9)	167 (1.7)	190 (1.6	214 (1.9)	237 (1.2)	256 (2.1)	267 (1.6)
Idaho	220 (1.0)	172 (2.2)	183 (1.4)	202 (2.5)	222 (0.9)	240 (0.7)	256 (1.2)	264 (0.8)
Indiana	220 (1.1)	174 (1.6)	184 (1.2)	200 (1.7)	220 (1.2)	239 (1.2)	256 (1.0)	267 (2.3)
Iowa	229 (1.1)	179 (2.4)	190 (2.2)	210 (1.1)	231 (0.8)	249 (0.7)	266 (1.1)	275 (0.8)
Kentucky	214 (1.0	166 (1.9)	176 (1.7)	193 (1.1)	213 (1.1)	234 (0.9)	253 (1.7)	263 (1.7)
Louisiana	203 (1.4)	148 (2.4)	160 (2.3)	181 (1.6)	203 (2.0)	225 (3.2)	244 (1.5)	255 (2.3)
Maine	231 (1.0)	183 (2.1)	194 (1.9)	212 (1.2)	232 (1.8)	251 (1.0)	265 (1.3)	274 (2.1)
Maryland	216 (1.3)	157 (2.7)	169 (2.0)	191 (2.6)	218 (2.2)	241 (1.2)	261 (1.6)	272 (1.5)
Massachusetts	226 (1.2)	172 (3.6)	184 (1.5)	205 (1.5)	227 (1.3)	247 (1.4)	264 (1.1)	274 (1.3)
Michigan	219 (1.8)	159 (4.7)	174 (3.3)	198 (2.3)	221 (1.8)	242 (1.5)	259 (1.6)	268 (2.3)
Minnesota	227 (0.9)	173 (2.6)	186 (3.8)	208 (1.2)	229 (1.0)	249 (0.9)	266 (1.0)	275 (1.4)
Mississippi	200 (1.1)	147 (2.7)	159 (1.7)	178 (1.0)	200 (1.4)	222 (1.2)	241 (1.8)	252 (1.3)
Missouri	221 (1.2)	170 (2.9)	182 (2.9)	201 (1.4)	222 (1.5)	242 (1.2)	260 (1.4)	269 (1.2)
Nebraska	224 (1.3)	172 (2.2)	183 (1.9)	204 (1.7)	226 (1.1)	246 (1.4)	262 (1.6)	272 (3.0)
New Hampshire	229 (1.2)	180 (2.0)	192 (1.6)	210 (1.2)	229 (1.4)	249 (1.3)	265 (2.5)	274 (1.0)
New Jersey	226 (1.5)	170 (5.1)	185 (2.8)	206 (1.9)	228 (1.6)	248 (1.1)	265 (2.3)	274 (2.4)
New Mexico	212 (1.5)	162 (1.8)	172 (2.5)	191 (1.8)	212 (1.0)	232 (1.7)	251 (2.5)	262 (2.3)
New York	217 (1.3)	160 (2.4)	173 (3.2)	196 (1.4)	219 (1.8)	240 (1.7)	258 (1.6)	269 (2.0)
North Carolina	211 (1.1)	156 (2.2)	168 (1.6)	188 (1.4)	213 (1.4)	235 (1.3)	253 (1.2)	264 (1.3)
North Dakota	228 (0.8)	182 (2.0)	193 (2.8)	210 (1.9)	228 (0.8)	246 (0.8)	261 (1.1)	270 (1.3)
Ohio	217 (1.2)	165 (2.0)	177 (2.7)	196 (1.5)	218 (1.3)	239 (2.3)	258 (1.4)	268 (1.4)
Oklahoma	219 (1.0)	173 (1.2)	184 (1.5)	201 (1.2)	219 (1.1)	237 (1.4)	254 (2.2)	264 (2.4)
Pennsylvania	223 (1.4)	169 (2.5)	181 (1.8)	202 (1.9)	225 (1.8)	246 (1.6)	262 (2.3)	272 (2.2)
Rhode Island	214 (1.6)	159 (2.1)	172 (3.1)	193 (2.9)	216 (1.8)	236 (2.0)	254 (2.2)	264 (2.5)
South Carolina	211 (1.1)	160 (1.9)	171 (1.3)	189 (1.2)	210 (1.2)	233 (1.4)	253 (2.4)	263 (2.0)
Tennessee	209 (1.4)	158 (1.9)	169 (2.0)	188 (1.9)	210 (1.7)	231 (1.5)	248 (1.9)	259 (1.9)
Texas	217 (1.3)	164 (1.9)	177 (2.2)	196 (1.5)	217 (1.6)	238 (1.6)	256 (2.7)	267 (1.8)
Utah	223 (1.0)	172 (2.0)	185 (1.6)	204 (0.9)	224 (1.3)	243 (0.8)	260 (0.9)	269 (1.2)
Virginia	220 (1.3)	167 (1.7)	178 (1.4)	197 (1.6)	220 (1.1)	242 (1.8)	262 (2.8)	272 (2.2)
West Virginia	214 (1.1)	164 (1.5)	175 (1.5)	194 (1.4)	214 (1.2)	234 (1.4)	252 (1.8)	263 (1.5)
Wisconsin	228 (1.1)	176 (1.9)	189 (2.1)	209 (1.0)	229 (1.2)	248 (1.3)	264 (1.3)	274 (1.9)
Wyoming	224 (1.0)	177 (1.8)	189 (2.1)	207 (1.9)	225 (1.2)	243 (1.3)	258 (1.2)	267 (1.0)
TERRITORY								
Guam	191 (0.8)	134 (2.8)	147 (1.8)	168 (0.9)	191 (1.1)	214 (1.4)	235 (1.3)	248 (2.1)

The standard errors of the estimated proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample.

TABLE 1.6 | Percentiles of Overall Mathematics Proficiency (continued)

PUBLIC SCHOOLS	Grade 8 - 1992							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	266 (1.0)	205 (2.0)	218 (1.6)	241 (1.3)	267 (1.2)	292 (1.0)	313 (1.4)	325 (1.5)
Northeast	267 (3.0)	205 (3.0)	217 (4.0)	240 (3.1)	266 (4.5)	295 (4.4)	318 (3.8)	332 (2.5)
Southeast	258 (1.2)	201 (3.0)	212 (2.9)	233 (1.7)	259 (1.7)	283 (1.6)	304 (2.5)	315 (1.7)
Central	273 (2.2)	213 (2.8)	227 (2.5)	250 (3.0)	275 (2.4)	297 (2.6)	316 (3.1)	326 (1.9)
West	267 (2.1)	205 (2.2)	218 (2.8)	242 (3.1)	268 (2.5)	293 (1.9)	314 (3.6)	327 (3.5)
STATES								
Alabama	251 (1.7)	193 (4.2)	206 (1.9)	227 (1.8)	251 (2.0)	276 (1.7)	299 (2.0)	311 (2.8)
Arizona	265 (1.3) >	210 (2.1)	222 (1.6) >	243 (1.3)	265 (1.9)	287 (1.2)	307 (1.3)	318 (1.4)
Arkansas	255 (1.2)	197 (2.9)	211 (1.6)	233 (1.2)	256 (1.2)	279 (1.6)	299 (1.6)	311 (1.7)
California	260 (1.7)	194 (3.0)	209 (2.7)	234 (2.6)	261 (1.8)	288 (1.7)	309 (2.5)	321 (3.8)
Colorado	272 (1.1) >	214 (2.8)	228 (1.6)	250 (1.2)	273 (1.1) >	295 (1.2) >	313 (1.2)	323 (1.2)
Connecticut	273 (1.1) >	209 (3.3)	224 (2.6)	249 (1.7)	275 (0.8) >	299 (1.0)	318 (1.4)	329 (2.4)
Delaware	262 (1.0)	202 (3.1)	216 (1.8)	239 (0.9)	262 (1.3)	287 (1.5)	307 (1.4)	319 (1.9)
Dist. Columbia	234 (0.9) >	176 (1.7)	189 (1.0)	209 (1.2)	233 (1.8)	257 (2.8)	280 (1.7)	296 (3.4)
Florida	259 (1.5)	197 (2.0)	210 (3.0)	234 (1.6)	260 (2.0)	285 (1.7)	306 (2.0)	318 (1.4)
Georgia	259 (1.2)	201 (1.9)	214 (1.5)	235 (1.5)	259 (1.3)	283 (2.1)	303 (1.5)	314 (1.8)
Hawaii	257 (0.9) »	194 (2.7)	208 (1.5) »	231 (1.0) »	257 (1.6) >	283 (1.0)	305 (1.3)	317 (1.6)
Idaho	274 (0.8) >	223 (2.1)	235 (1.1)	254 (0.9)	275 (1.2)	296 (0.8)	313 (1.1) >	323 (1.8)
Indiana	269 (1.2)	213 (1.9)	225 (1.5)	247 (1.2)	270 (1.3)	293 (1.9)	313 (2.9)	325 (1.1)
Iowa	283 (1.0) »	233 (1.1)	244 (2.1)	263 (1.4) >	284 (1.1) >	304 (1.5)	321 (1.6)	330 (2.6)
Kentucky	261 (1.1) >	204 (3.3)	216 (1.7)	238 (1.6)	262 (1.0) >	285 (1.3) >	305 (2.8)	318 (1.8)
Louisiana	249 (1.7)	193 (2.8)	205 (2.6)	226 (2.2)	250 (1.6)	272 (2.0)	293 (1.8)	305 (2.1)
Maine	278 (1.0)	226 (1.8)	239 (2.3)	258 (1.2)	279 (1.1)	299 (1.7)	316 (1.3)	327 (2.6)
Maryland	264 (1.3)	199 (2.9)	213 (1.8)	237 (2.3)	265 (1.3)	292 (1.6)	314 (1.6)	326 (1.9)
Massachusetts	272 (1.1)	215 (2.4)	229 (1.4)	249 (2.2)	273 (2.0)	297 (1.6)	316 (1.7)	325 (2.3)
Michigan	267 (1.4)	205 (1.6)	220 (1.4)	243 (2.3)	268 (1.6)	292 (2.9)	311 (2.3)	323 (1.7)
Minnesota	282 (1.0) »	228 (2.4) >	240 (1.4) >	260 (1.4)	283 (1.3) »	304 (1.4) »	322 (1.4) »	332 (2.0)
Mississippi	246 (1.2)	188 (2.6)	201 (1.2)	221 (1.3)	245 (1.2)	270 (1.6)	291 (2.0)	303 (2.8)
Missouri	270 (1.2)	215 (1.8)	228 (2.9)	249 (1.8)	272 (1.4)	293 (1.6)	312 (1.3)	322 (2.2)
Nebraska	277 (1.1)	219 (1.8)	234 (1.7)	256 (1.2)	279 (1.4)	300 (1.0)	317 (1.5)	327 (3.5)
New Hampshire	278 (1.0) »	227 (1.0)	238 (1.1)	258 (0.8)	278 (0.9) >	299 (1.1)	316 (2.0)	327 (2.9)
New Jersey	271 (1.6)	209 (2.8)	222 (1.9)	247 (2.0)	273 (1.9)	297 (2.2)	317 (1.6)	328 (1.3)
New Mexico	259 (0.9) >	205 (2.0)	217 (2.0)	237 (0.9)	259 (1.0)	281 (1.0)	300 (1.3)	312 (2.1)
New York	266 (2.1)	196 (6.5)	213 (3.1)	241 (2.8)	268 (1.8) >	293 (1.4) >	314 (2.4)	326 (1.5)
North Carolina	258 (1.2) »	199 (3.1)	212 (2.6) >	234 (1.3) »	258 (1.2) »	282 (1.4) >	303 (1.5) >	315 (2.5)
North Dakota	283 (1.2)	234 (2.3)	245 (1.2)	264 (1.4)	284 (1.0)	302 (1.4)	318 (1.7)	328 (1.2)
Ohio	267 (1.5)	209 (2.9)	222 (1.9)	244 (2.0)	269 (1.6)	292 (1.4)	310 (1.5)	322 (1.8)
Oklahoma	267 (1.2) >	212 (3.6)	226 (1.3)	247 (1.4)	268 (1.1)	290 (1.4)	308 (1.5)	318 (1.8)
Pennsylvania	271 (1.5)	212 (2.2)	225 (2.3)	248 (1.5)	272 (1.4)	295 (1.1) >	314 (1.8)	326 (1.8)
Rhode Island	265 (0.7) »	208 (1.5) >	221 (1.2) »	243 (1.1) »	267 (1.2) »	289 (1.7)	307 (1.1)	318 (0.9)
South Carolina	260 (1.0)	203 (1.6)	215 (1.3)	235 (1.1)	259 (1.2)	285 (1.7)	307 (1.5)	319 (1.8)
Tennessee	258 (1.4)	202 (3.5)	214 (2.1)	235 (1.5)	258 (1.6)	282 (1.4)	302 (1.5)	312 (2.8)
Texas	264 (1.3) >	203 (1.2)	216 (2.6)	238 (1.2)	264 (1.9)	289 (2.3)	312 (1.5) >	325 (3.3)
Utah	274 (0.7)	218 (1.3)	232 (1.2)	253 (1.7)	275 (0.8)	296 (1.2)	314 (1.2)	324 (1.8)
Virginia	267 (1.2)	209 (1.8)	221 (1.5)	243 (1.7)	267 (1.7)	291 (1.6)	313 (1.5)	325 (1.9)
West Virginia	258 (1.0)	207 (2.7)	218 (1.5)	237 (1.0)	258 (1.7)	280 (1.1)	298 (1.8)	308 (1.8)
Wisconsin	277 (1.5)	219 (3.8)	233 (2.6)	257 (2.1)	279 (1.5)	301 (1.5)	318 (1.4)	328 (1.9)
Wyoming	274 (0.9) >	226 (1.1)	236 (1.0)	254 (1.2)	275 (1.2)	295 (1.2)	312 (1.1)	322 (2.6)
TERRITORIES								
Guam	234 (1.0) >	171 (2.2)	184 (2.1)	207 (1.8)	233 (1.6)	261 (2.5)	286 (3.7)	301 (2.1)
Virgin Islands	222 (1.1) >	173 (2.2)	183 (1.2)	201 (1.6)	221 (1.2)	242 (1.5)	260 (1.6)	272 (0.9)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

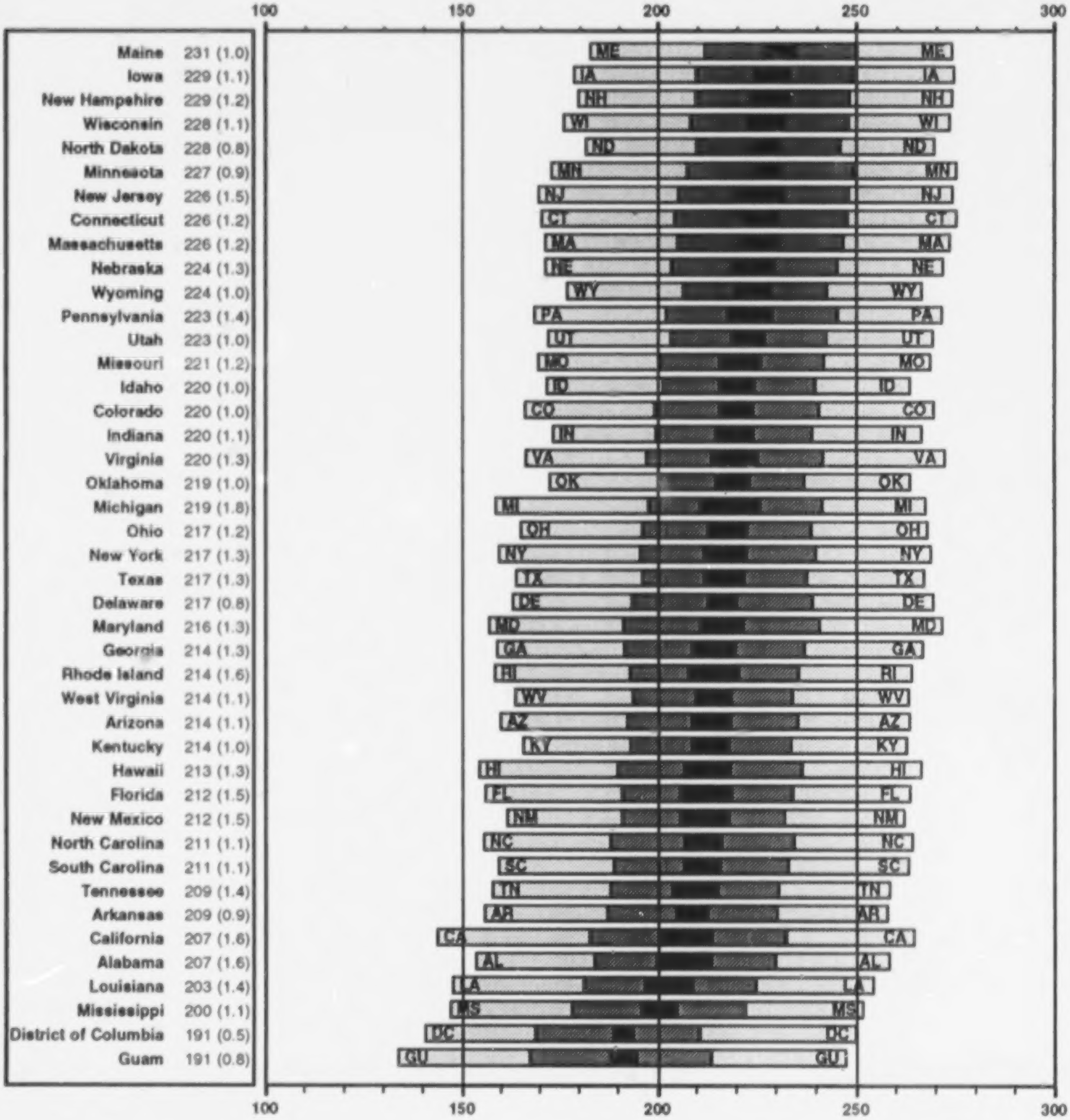
TABLE 1.6 | Percentiles of Overall Mathematics Proficiency (continued)

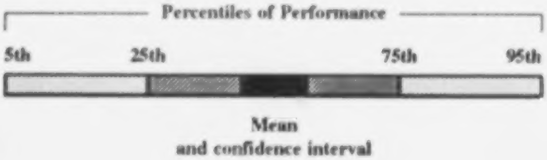
PUBLIC SCHOOLS	Grade 8 - 1990							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	262 (1.4)	200 (1.8)	214 (1.8)	237 (1.7)	263 (1.4)	288 (1.7)	307 (1.9)	319 (1.8)
Northeast	270 (3.3)	211 (5.4)	226 (4.2)	247 (2.9)	271 (4.9)	295 (4.6)	311 (3.4)	323 (6.5)
Southeast	254 (2.6)	193 (8.9)	206 (5.5)	228 (3.8)	255 (3.3)	281 (2.0)	302 (3.2)	315 (4.0)
Central	265 (2.3)	207 (4.4)	219 (7.7)	242 (3.4)	266 (3.0)	289 (3.0)	306 (1.2)	317 (4.4)
West	261 (2.6)	198 (4.9)	211 (3.0)	235 (3.2)	262 (1.6)	286 (2.6)	309 (4.1)	322 (4.4)
STATES								
Alabama	253 (1.1)	196 (2.6)	209 (1.9)	229 (1.7)	253 (1.3)	276 (1.3)	297 (1.4)	309 (1.1)
Arizona	260 (1.3)	202 (2.7)	215 (2.1)	236 (2.2)	260 (1.5)	283 (1.1)	304 (2.2)	315 (2.0)
Arkansas	256 (0.9)	201 (1.9)	214 (1.0)	234 (1.6)	257 (1.0)	279 (0.9)	298 (1.8)	309 (2.1)
California	256 (1.3)	194 (2.4)	207 (1.5)	231 (1.6)	257 (1.3)	282 (1.8)	304 (2.1)	317 (3.1)
Colorado	267 (0.9)	211 (1.3)	224 (1.5)	246 (1.1)	268 (1.2)	290 (1.0)	309 (1.0)	320 (1.4)
Connecticut	270 (1.0)	209 (2.3)	223 (1.7)	246 (1.5)	271 (1.2)	295 (1.3)	315 (1.1)	327 (1.1)
Delaware	261 (0.9)	202 (3.0)	216 (2.7)	237 (1.0)	260 (1.1)	286 (1.4)	307 (1.6)	318 (3.5)
Dist. Columbia	231 (0.9)	179 (1.4)	190 (1.7)	209 (1.1)	230 (0.9)	252 (1.3)	274 (2.5)	288 (2.4)
Florida	255 (1.3)	195 (1.4)	209 (1.6)	231 (1.9)	255 (1.0)	280 (1.7)	303 (2.0)	316 (3.3)
Georgia	259 (1.3)	199 (2.2)	211 (1.3)	233 (1.8)	259 (1.3)	284 (2.1)	306 (2.6)	320 (2.4)
Hawaii	251 (0.8)	187 (3.2)	200 (1.4)	224 (1.1)	251 (1.1)	279 (1.3)	302 (1.2)	315 (1.4)
Idaho	271 (0.8)	222 (1.3)	233 (1.3)	252 (0.9)	273 (0.9)	292 (1.1)	309 (1.0)	318 (1.3)
Indiana	267 (1.1)	213 (2.8)	225 (1.8)	245 (1.2)	267 (1.9)	289 (1.5)	309 (1.7)	322 (2.1)
Iowa	278 (1.1)	227 (2.4)	238 (1.1)	257 (1.1)	279 (1.4)	299 (2.1)	317 (1.4)	328 (1.3)
Kentucky	257 (1.2)	204 (2.2)	216 (2.2)	235 (2.1)	256 (1.8)	279 (1.1)	300 (1.9)	312 (2.2)
Louisiana	246 (1.2)	191 (3.4)	204 (1.7)	224 (1.7)	246 (1.7)	269 (1.5)	289 (2.1)	300 (1.3)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	261 (1.4)	198 (3.7)	211 (2.3)	234 (1.8)	262 (1.1)	288 (1.3)	310 (1.8)	322 (1.7)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	264 (1.2)	207 (1.9)	220 (1.8)	241 (1.4)	265 (1.5)	288 (1.6)	308 (2.1)	320 (2.4)
Minnesota	275 (0.9)	220 (1.1)	233 (1.9)	255 (1.5)	277 (0.9)	297 (1.0)	316 (1.0)	326 (1.1)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	276 (1.0)	218 (2.9)	233 (1.8)	255 (2.1)	277 (1.3)	298 (0.9)	316 (1.7)	326 (1.5)
New Hampshire	273 (0.9)	222 (1.8)	234 (1.1)	253 (1.8)	273 (0.9)	294 (1.3)	313 (2.1)	324 (1.3)
New Jersey	270 (1.1)	211 (2.0)	223 (2.1)	245 (1.0)	270 (1.3)	294 (1.6)	316 (2.5)	328 (1.9)
New Mexico	256 (0.7)	202 (3.7)	214 (1.1)	234 (1.1)	257 (1.2)	279 (1.3)	300 (1.9)	311 (1.8)
New York	261 (1.4)	196 (3.7)	212 (3.4)	236 (2.3)	262 (1.3)	286 (1.1)	308 (2.0)	323 (2.9)
North Carolina	250 (1.1)	192 (1.1)	204 (1.5)	225 (1.2)	251 (1.4)	275 (1.0)	296 (1.4)	308 (1.5)
North Dakota	281 (1.2)	230 (1.1)	243 (2.7)	262 (1.8)	282 (1.0)	301 (1.3)	317 (0.9)	327 (3.3)
Ohio	264 (1.0)	208 (1.9)	221 (1.4)	242 (1.4)	264 (1.5)	287 (1.4)	307 (1.1)	318 (2.9)
Oklahoma	263 (1.3)	209 (2.8)	222 (1.8)	242 (1.8)	264 (1.4)	285 (2.0)	304 (2.4)	315 (2.8)
Pennsylvania	266 (1.6)	208 (3.6)	222 (2.8)	244 (2.7)	267 (1.9)	290 (1.2)	309 (2.1)	320 (1.2)
Rhode Island	260 (0.6)	200 (1.7)	213 (0.8)	235 (0.8)	261 (0.8)	286 (0.8)	306 (1.1)	318 (2.6)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	258 (1.4)	201 (1.8)	213 (1.9)	234 (1.5)	258 (1.5)	283 (1.4)	303 (2.2)	316 (2.4)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	264 (1.5)	206 (1.5)	218 (1.8)	238 (1.8)	264 (1.6)	289 (2.3)	312 (3.4)	327 (4.0)
West Virginia	256 (1.0)	202 (1.5)	215 (1.7)	234 (1.5)	255 (0.7)	277 (1.0)	298 (1.1)	310 (2.4)
Wisconsin	274 (1.3)	218 (1.9)	231 (1.8)	253 (2.2)	276 (1.3)	297 (1.4)	315 (2.4)	327 (1.6)
Wyoming	272 (0.7)	222 (1.2)	235 (1.6)	253 (0.9)	272 (0.9)	293 (0.8)	309 (1.0)	320 (0.7)
TERRITORIES								
Guam	232 (0.7)	171 (1.7)	182 (1.7)	205 (1.7)	231 (1.7)	258 (1.9)	282 (2.0)	295 (1.3)
Virgin Islands	219 (0.9)	170 (3.0)	181 (2.0)	199 (1.1)	218 (1.7)	238 (1.2)	257 (1.6)	269 (2.4)

(xxx) Did not participate in the 1990 Trial State Assessment.

FIGURE 1.7

Distribution of Overall Mathematics Proficiency Organized by Average Proficiency
1992 Grade 4





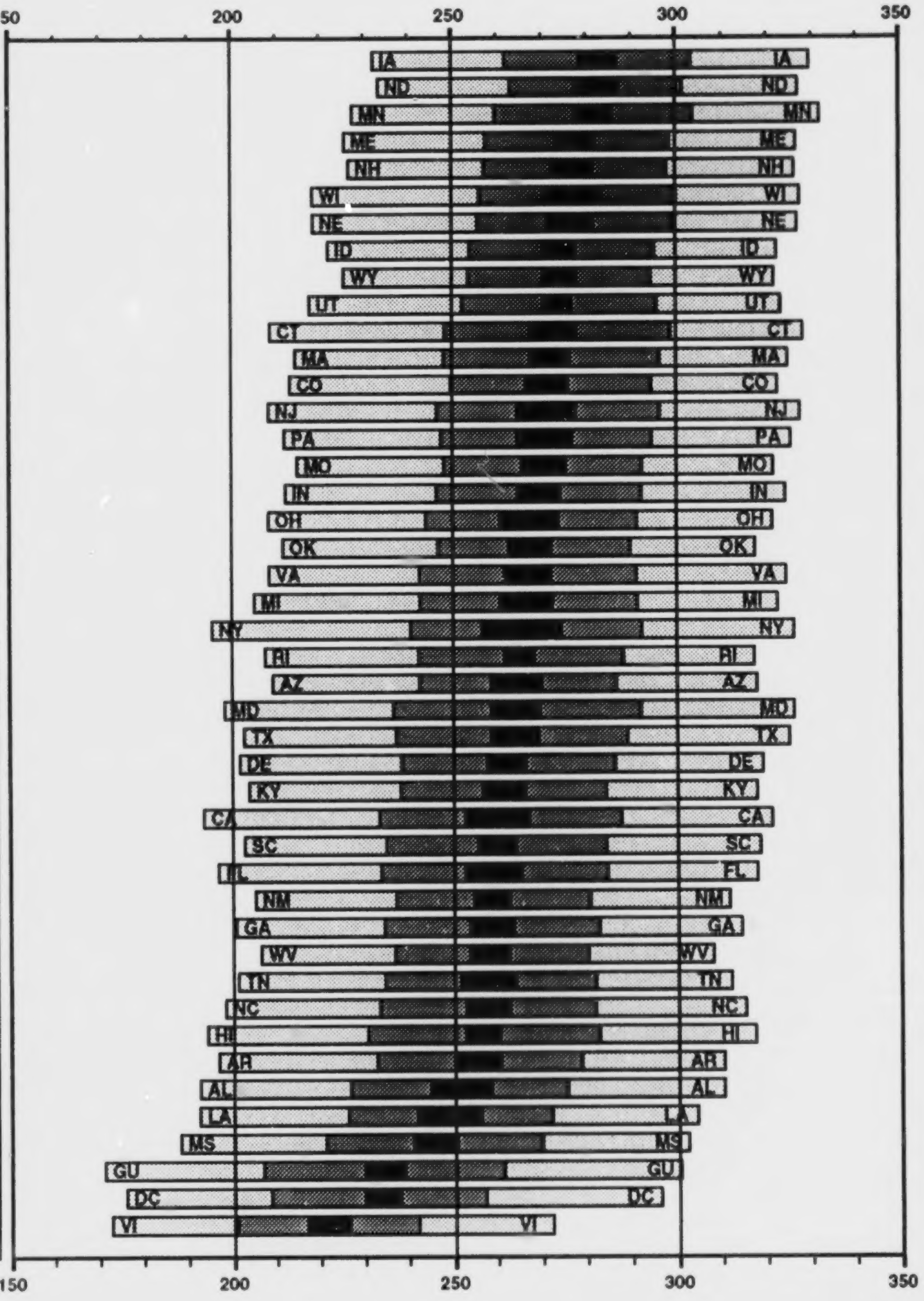
Percentiles of Performance
5th
25th
75th
95th
Mean
and confidence interval

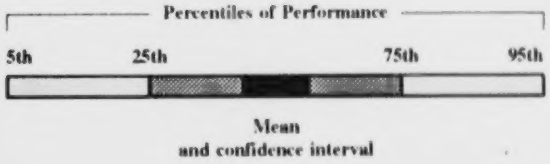
The center ***darkest*** box indicates a simultaneous confidence interval around the average mathematics proficiency for the state based on the Bonferroni procedure for multiple comparisons. Center boxes that do not overlap indicate significant differnces between between states in average mathematics proficiency. The ***darker shaded*** boxes indicate the ranges between the 25th and 75th percentiles of the mathematics proficiency distribution, and the ***lighter shaded*** boxes the ranges between the 5th to 25th percentiles and the 75th to 95th percentiles of the distribution.

FIGURE 1.8

Distribution of Overall Mathematics Proficiency Organized by Average Proficiency
1992 Grade 8

Iowa	283 (1.0)
North Dakota	283 (1.2)
Minnesota	282 (1.0)
Maine	278 (1.0)
New Hampshire	278 (1.0)
Wisconsin	277 (1.5)
Nebraska	277 (1.1)
Idaho	274 (0.8)
Wyoming	274 (0.9)
Utah	274 (0.7)
Connecticut	273 (1.1)
Massachusetts	272 (1.1)
Colorado	272 (1.1)
New Jersey	271 (1.6)
Pennsylvania	271 (1.5)
Missouri	270 (1.2)
Indiana	269 (1.2)
Ohio	267 (1.5)
Oklahoma	267 (1.2)
Virginia	267 (1.2)
Michigan	267 (1.4)
New York	266 (2.1)
Rhode Island	265 (0.7)
Arizona	265 (1.3)
Maryland	264 (1.3)
Texas	264 (1.3)
Delaware	262 (1.0)
Kentucky	261 (1.1)
California	260 (1.7)
South Carolina	260 (1.0)
Florida	259 (1.5)
New Mexico	259 (0.9)
Georgia	259 (1.2)
West Virginia	258 (1.0)
Tennessee	258 (1.4)
North Carolina	258 (1.2)
Hawaii	257 (0.9)
Arkansas	255 (1.2)
Alabama	251 (1.7)
Louisiana	249 (1.7)
Mississippi	246 (1.2)
Guam	234 (1.0)
District of Columbia	234 (0.9)
Virgin Islands	222 (1.1)

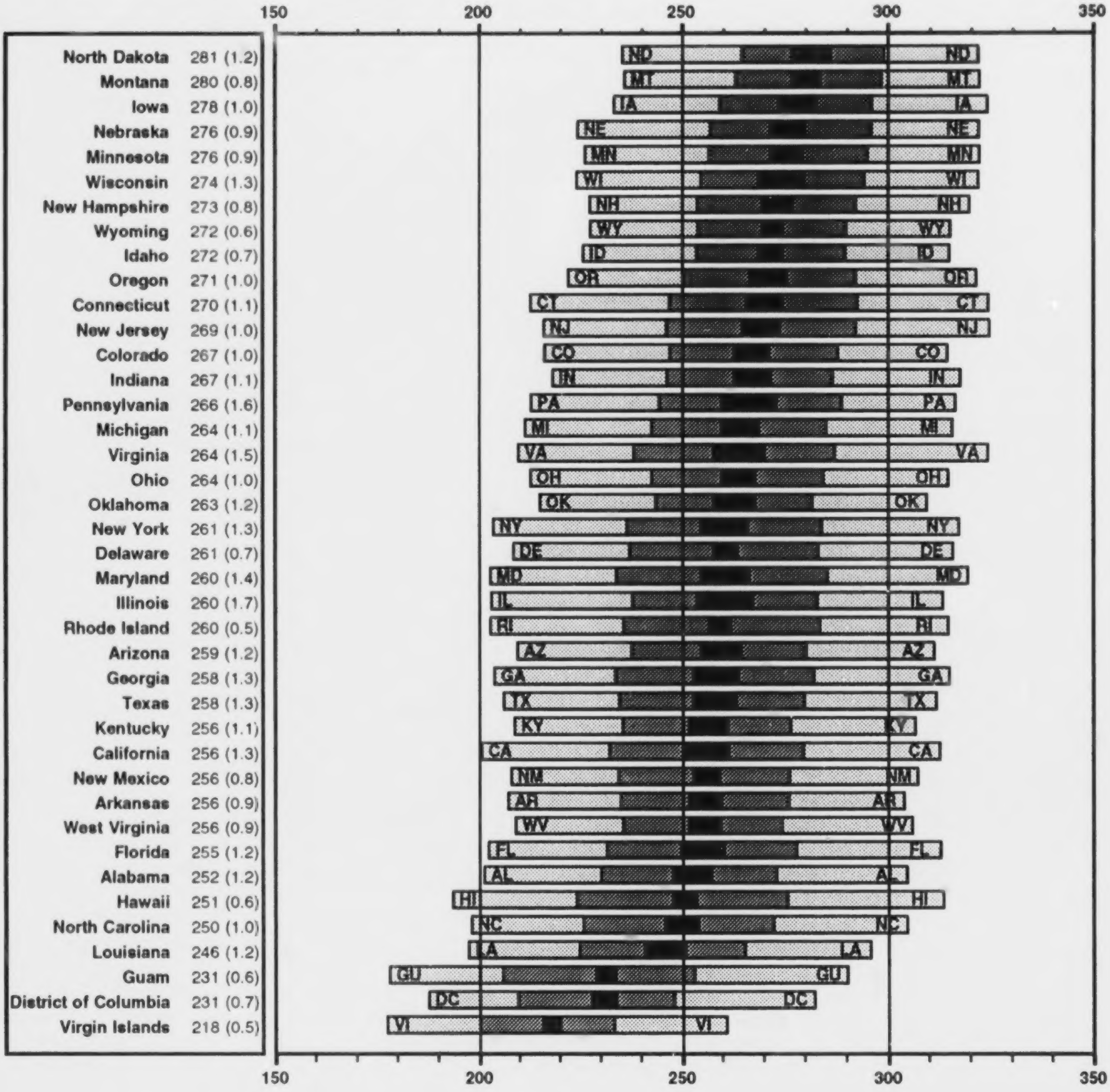




The center ***darkest*** box indicates a simultaneous confidence interval around the average mathematics proficiency for the state based on the Bonferroni procedure for multiple comparisons. Center boxes that do not overlap indicate significant differnces between between states in average mathematics proficiency. The ***darker shaded*** boxes indicate the ranges between the 25th and 75th percentiles of the mathematics proficiency distribution, and the ***lighter shaded*** boxes the ranges between the 5th to 25th percentiles and the 75th to 95th percentiles of the distribution.

FIGURE 1.9

Distribution of Overall Mathematics Proficiency Organized by Average Proficiency
1990 Grade 8



The center ***darkest*** box indicates a simultaneous confidence interval around the average mathematics proficiency for the state based on the Bonferroni procedure for multiple comparisons. Center boxes that do not overlap indicate significant differnces between between states in average mathematics proficiency. The ***darker shaded*** boxes indicate the ranges between the 25th and 75th percentiles of the mathematics proficiency distribution, and the ***lighter shaded*** boxes the ranges between the 5th to 25th percentiles and the 75th to 95th percentiles of the distribution.

Summary

There was a significant improvement in average mathematics proficiency at all three grades between 1990 and 1992. However, even with these gains students' performance fell considerably short of the guidelines set by the Board for where they should be performing. According to procedures which involved broadly constituted panels of judges setting three achievement levels -- Basic, Proficient, and Advanced -- it was estimated that only small percentages of students (2 to 4 percent) attained their grade's designated Advanced level, which signifies superior performance.

Proficient, the central level, represents solid academic performance and competence with challenging subject matter. Eighteen percent of the students at grade 4, 25 percent at grade 8, and 16 percent at grade 12 were estimated to be at or above the Proficient level. The Basic level denotes partial mastery of the knowledge and skills fundamental for proficient work at each grade. About 60 percent of the students at each grade were estimated to be at or above this performance level, which conversely meant that from 36 to 39 percent of the students were estimated to have performed below the Basic level. There were significant increases from 1990 to 1992 at each grade in the percentages of students performing at or above the Basic level. At grades 4 and 8, there also were increases in the percentages of students performing at or above the Proficient level. The percentages of students attaining the Advanced level remained essentially constant between the two assessments.

The results by percentile indicated upward movement for the upper 75 percent of the fourth graders, the top 25 percent of the eighth graders, and the lower 10 percent of the twelfth graders.

Across the regions of the country, signs of improvement were noted in all four regions of the country -- Northeast, Southeast, Central, and West -- for all three grades (except for grade 8 in the Northeast). Not all of these apparent gains were statistically significant, however. Fourth graders had significantly higher average proficiency in 1992 than in 1990 in all regions of the country except the West. Statistically significant improvements were noted in the Central and West at grade 8, and in the Southeast at grade 12. The pattern of pervasive improvements left the relative standing of the regions about the same from assessment to assessment. The Southeast continues to trail the other three regions at all three grades.

As would be anticipated, the state-by-state results mirrored the national and regional results. Across the states the majority of the fourth and eighth graders tended to perform at or above the Basic level. In general, fewer than one-fourth of the students at grade 4 and fewer than one-third of the students at grade 8 were estimated to be at or above the Proficient performance level. From 0 to 6 percent were estimated to have attained the Advanced level at either grade.

Among the 37 jurisdictions that participated in both the 1990 and 1992 Trial State Assessments at grade 8, significant improvements in average mathematics proficiency were noted in 18 -- Arizona, Colorado, Connecticut, the District of Columbia, Hawaii, Idaho, Iowa, Kentucky, Minnesota, New Hampshire, New Mexico, North Carolina, Oklahoma, Rhode Island, Texas, Wyoming, Guam, and the Virgin Islands. Thus, there were increases for about half of the participants. These improvements were scattered across the country and in the territories, although a number seemed to be concentrated in the Southwest/West/Rocky Mountain portion of the country.

In 1992, at grade 4, based on statistical tests of multiple comparisons, the highest performing states included Maine, Iowa, New Hampshire, Wisconsin, North Dakota, Minnesota, New Jersey, Connecticut, Massachusetts, and Nebraska (see FIGURE 1.5). At grade 8, the highest performing states were Iowa, North Dakota, Minnesota, Maine, New Hampshire, Wisconsin, and Nebraska (see FIGURE 1.6). Lower-performing jurisdictions at both grades included Alabama, Louisiana, Mississippi, the District of Columbia, and Guam; the Virgin Islands was also among the lower-performing jurisdictions at grade 8.

CHAPTER TWO

Overall Mathematics Achievement for Demographic Groups for the Nation and the States

National Performance by Race/Ethnicity

Average mathematics performance and the percentages of students at or above the three achievement levels for students in five racial/ethnic groups in grades 4, 8, and 12 for 1990 and 1992 are presented in TABLE 2.1. For both assessments and at all three grades, the overall pattern of average proficiency is the same: Asian/Pacific Islander and White students had higher average proficiency in mathematics than Black students, and Hispanic and American Indian students performed somewhere in between.[20]

Average performance in mathematics increased significantly between 1990 and 1992 for White students at all three grades, and for Black and Hispanic students at grade 12. The only significant gains at specific achievement levels were found for fourth- and eighth-grade White students at the Basic and Proficient Levels.

Relatively few students in any racial/ethnic group at any grade achieved the Advanced level in either 1990 or 1992. Among Asian/Pacific Islander students in 1992, 5 percent were estimated to have reached this level at grade 4, 14 percent at grade 8, and 6 percent at grade 12. From 2 to 4 percent of the White students were estimated to have attained the Advanced level at all three grades.

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[20] Countless studies have found differences in mathematics achievement to be systematically related to socioeconomic background. The confounding between socioeconomic background factors and the race/ethnicity findings is further described in conjunction with Table 2.17 showing the percentages of students attending the top- and bottom-performing schools by demographic subgroup.

For American Indian, Black, and Hispanic students, from 0 to 2 percent across the three grades assessed were estimated to have reached the Advanced level.

In 1992, it is estimated that from 30 to 44 percent of the Asian/Pacific Islander students and from 19 to 32 percent of the White students performed at or above the Proficient level. Ten percent or fewer of the American Indian, Black, or Hispanic students were estimated to be at or above the Proficient level.

TABLE 2.1 Average Mathematics Proficiency and Achievement Levels by Race/Ethnicity, Grades 4, 8, and 12

				Percentage of Students At or Above			
	Assessment Years	Percentage of Students	Average Proficiency	Advanced	Proficient	Basic	Percentage Below Basic
Grade 4							
White	1992	70(0.2)	227(0.9)>	3(0.4)	23(1.4)>	72(1.2)>	28(1.2)<
	1990	70(0.2)	220(1.1)	2(0.5)	17(1.5)	64(1.7)	36(1.7)
Black	1992	16(0.1)	192(1.3)	0(0.1)	3(0.7)	24(1.8)	76(1.8)
	1990	15(0.1)	189(1.8)	0(0.1)	2(0.5)	22(2.5)	78(2.5)
Hispanic	1992	10(0.2)	201(1.4)	0(0.2)	6(1.1)	37(2.1)	63(2.1)
	1990	10(0.2)	198(2.0)	0(0.2)	5(1.2)	34(3.0)	66(3.0)
Asian/Pacific Islander	1992	2(0.2)	231(2.4)	5(2.1)	30(4.7)	76(3.4)	24(3.4)
	1990	2(0.2)	228(3.5)	4(3.8)	24(5.0)	69(6.5)	31(6.5)
American Indian	1992	2(0.2)	209(3.2)	2(1.3)	10(3.6)	46(4.5)	54(4.5)
	1990	2(0.2)	208(3.9)	0(0.5)	5(2.7)	48(8.4)	52(8.4)
Grade 8							
White	1992	70(0.2)	277(1.0)>	4(0.5)	32(1.3)>	74(1.3)>	26(1.3)<
	1990	71(0.3)	270(1.4)	3(0.5)	24(1.5)	68(1.5)	32(1.5)
Black	1992	16(0.1)	237(1.4)	0(0.4)	3(0.8)	27(2.1)	73(2.1)
	1990	15(0.2)	238(2.7)	0(0.3)	6(1.2)	28(3.1)	72(3.1)
Hispanic	1992	10(0.2)	246(1.2)	1(0.5)	8(1.0)	39(2.0)	61(2.0)
	1990	10(0.2)	244(2.8)	0(0.2)	6(1.5)	38(3.1)	62(3.1)
Asian/Pacific Islander	1992	2(0.2)	288(5.5)	14(4.5)	44(7.3)	80(4.1)	20(4.1)
	1990	2(0.5)	279(4.8)!	6(2.5)	38(5.5)	76(5.3)	24(5.3)
American Indian	1992	1(0.2)	254(2.8)	0(0.0)	9(3.5)	47(4.7)	53(4.7)
	1990	2(0.6)	246(9.4)!	0(0.3)	9(8.7)	39(11.0)	61(11.0)
Grade 12							
White	1992	71(0.6)	305(0.9)>	2(0.4)	19(1.1)	72(1.3)	28(1.3)
	1990	74(0.6)	300(1.2)	2(0.4)	16(1.3)	67(1.7)	33(1.7)
Black	1992	15(0.4)	275(1.7)>	0(0.2)	3(0.6)	34(2.5)	66(2.5)
	1990	14(0.5)	268(1.9)	0(0.1)	2(1.0)	28(2.7)	72(2.7)
Hispanic	1992	10(0.5)	283(1.8)>	1(0.4)	6(0.8)	45(2.1)	55(2.1)
	1990	8(0.2)	276(2.8)	0(0.4)	4(1.2)	37(4.2)	63(4.2)
Asian/Pacific Islander	1992	4(0.2)	315(3.5)	6(1.4)	31(5.7)	81(4.3)	19(4.3)
	1990	3(0.3)	311(5.2)	5(2.6)	25(6.2)	76(5.0)	24(5.0)
American Indian	1992	1(0.1)	281(9.0)	0(0.3)	4(2.7)	46(16.3)	54(16.3)
	1990	1(0.3)	288(10.2)!	0(0.0)	4(6.8)	62(15.9)	38(15.9)

>The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. ! Interpret with caution -- the nature of the sample does not allow accurate determination of the variability of this estimated statistic. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent confidence for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details). When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 percent or less were rounded to 0 percent. Percentages may not total 100 percent due to rounding error.

Approximately three-fourths of the Asian/Pacific Islander (76 to 81 percent) and White (72 to 74 percent) students demonstrated mathematics achievement at or above the Basic level, while fewer than one-half of their American Indian, Hispanic, and Black classmates did. Approximately three-fourths of Black students at grades 4 and 8, and two-thirds at grade 12, were classified as performing below the Basic level.

Performance by Race/Ethnicity for the States

TABLE 2.2 presents the data for average mathematics proficiency for the various racial/ethnic groups for fourth graders in 1992 and eighth graders in 1992 and 1990 for the states and territories that participated in the Trial State Assessment Program. In most jurisdictions, the pattern observed in the national data was also found in the states for both fourth and eighth grades. In a number of jurisdictions, however, there were no significant differences in average mathematics performance between Hispanic and Black students.

TABLE 2.2 | Average Mathematics Proficiency by Race/Ethnicity

PUBLIC SCHOOLS	Grade 4 - 1992									
	White		Black		Hispanic		Asian / Pacific Islander		American Indian	
	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency
NATION	69 (0.4)	226 (1.0)	17 (0.4)	191 (1.4)	10 (0.2)	199 (1.5)	3 (0.3)	232 (2.6)	2 (0.2)	208 (3.5)
Northeast	71 (2.9)	232 (2.4)	17 (2.7)	194 (3.1)	8 (1.2)	200 (3.2)	2 (0.7)	*** (***)	1 (0.3)	*** (***)
Southeast	61 (2.5)	219 (2.2)	30 (2.6)	190 (2.0)	6 (1.0)	198 (3.4)	1 (0.3)	*** (***)	1 (0.3)	*** (***)
Central	80 (1.8)	228 (1.8)	12 (1.7)	192 (4.3)	6 (0.8)	198 (3.3)	1 (0.2)	*** (***)	1 (0.3)	*** (***)
West	64 (1.7)	225 (1.8)	10 (1.7)	188 (2.7)	17 (1.6)	200 (2.0)	5 (1.0)	232 (3.2)	2 (0.3)	*** (***)
STATES										
Alabama	61 (2.5)	218 (1.6)	32 (2.3)	187 (1.1)	4 (0.6)	192 (4.0)	1 (0.2)	*** (***)	2 (1.0)	*** (***)
Arizona	56 (2.1)	225 (0.8)	4 (0.7)	198 (3.6)	29 (1.5)	202 (1.3)	1 (0.2)	*** (***)	10 (1.7)	191 (3.5)
Arkansas	69 (1.5)	217 (1.0)	21 (1.4)	187 (1.7)	6 (0.6)	193 (2.9)	1 (0.2)	*** (***)	3 (0.4)	210 (3.7)
California	45 (2.0)	220 (1.8)	6 (0.7)	182 (3.3)	35 (1.7)	190 (1.6)	11 (1.1)	223 (2.7)	3 (0.5)	207 (6.7)
Colorado	68 (1.5)	227 (1.1)	5 (1.0)	199 (2.9)	22 (1.3)	205 (1.5)	3 (0.3)	222 (4.4)	3 (0.3)	214 (4.5)
Connecticut	73 (1.4)	234 (0.9)	10 (1.1)	193 (2.7)	13 (1.1)	204 (2.8)	2 (0.4)	*** (***)	1 (0.2)	*** (***)
Delaware	66 (1.1)	226 (0.9)	23 (0.9)	196 (1.4)	8 (0.4)	197 (2.6)	1 (0.2)	*** (***)	2 (0.4)	*** (***)
Dist. Columbia	5 (0.4)	241 (4.2)	82 (0.6)	189 (0.7)	10 (0.4)	181 (2.3)	1 (0.2)	*** (***)	2 (0.3)	*** (***)
Florida	58 (2.2)	223 (1.4)	21 (2.0)	189 (2.0)	17 (1.3)	205 (2.5)	2 (0.4)	*** (***)	2 (0.3)	*** (***)
Georgia	56 (2.2)	228 (1.2)	35 (2.1)	195 (1.4)	6 (0.6)	196 (2.7)	1 (0.2)	*** (***)	1 (0.3)	*** (***)
Hawaii	21 (1.6)	218 (1.8)	4 (0.6)	198 (3.3)	11 (0.7)	197 (2.6)	61 (2.1)	215 (1.6)	2 (0.3)	*** (***)
Idaho	84 (1.2)	223 (1.0)	1 (0.2)	*** (***)	11 (1.0)	202 (2.4)	1 (0.2)	*** (***)	3 (0.3)	212 (3.0)
Indiana	82 (1.5)	224 (0.9)	10 (1.3)	194 (2.4)	5 (0.6)	208 (2.0)	1 (0.2)	*** (***)	1 (0.3)	*** (***)
Iowa	90 (0.9)	231 (1.0)	2 (0.5)	193 (3.9)!	5 (0.5)	218 (2.6)	1 (0.3)	*** (***)	2 (0.3)	*** (***)
Kentucky	85 (1.6)	216 (1.0)	9 (1.3)	200 (2.5)	4 (0.6)	197 (3.0)	1 (0.2)	*** (***)	2 (0.3)	*** (***)
Louisiana	50 (2.0)	217 (1.5)	43 (2.0)	186 (1.7)	5 (0.6)	199 (4.3)	2 (0.7)	*** (***)	1 (0.3)	*** (***)
Maine	91 (0.7)	232 (1.1)	1 (0.1)	*** (***)	5 (0.6)	218 (3.6)	1 (0.2)	*** (***)	3 (0.5)	*** (***)
Maryland	59 (1.7)	228 (1.2)	30 (1.4)	193 (1.9)	6 (0.6)	205 (3.6)	4 (0.5)	235 (3.8)	2 (0.2)	*** (***)
Massachusetts	79 (1.6)	231 (1.0)	7 (0.8)	192 (3.1)	8 (0.8)	205 (2.7)	4 (0.7)	228 (8.0)	2 (0.2)	*** (***)
Michigan	73 (1.8)	227 (1.5)	13 (1.7)	184 (3.9)	9 (0.9)	204 (2.6)	2 (0.3)	*** (***)	3 (0.4)	210 (4.0)
Minnesota	85 (1.3)	231 (0.9)	3 (0.5)	192 (3.1)	7 (0.8)	206 (2.9)	2 (0.4)	*** (***)	2 (0.3)	*** (***)
Mississippi	40 (2.0)	217 (1.3)	52 (2.1)	188 (1.3)	6 (0.9)	184 (2.9)	1 (0.2)	*** (***)	1 (0.2)	*** (***)
Missouri	77 (1.7)	227 (1.1)	14 (1.7)	194 (2.2)	6 (0.5)	206 (3.2)	1 (0.2)	*** (***)	2 (0.4)	*** (***)
Nebraska	84 (1.3)	228 (1.2)	6 (0.7)	188 (2.5)	7 (0.9)	209 (3.2)	1 (0.2)	*** (***)	2 (0.3)	*** (***)
New Hampshire	89 (1.2)	230 (1.1)	1 (0.2)	*** (***)	5 (0.6)	214 (2.7)	1 (0.2)	*** (***)	3 (0.3)	*** (***)
New Jersey	66 (2.2)	236 (1.3)	14 (1.2)	197 (2.6)	14 (1.5)	205 (2.6)	5 (0.8)	240 (3.0)	1 (0.3)	*** (***)
New Mexico	44 (2.4)	224 (1.5)	4 (0.5)	201 (3.9)	47 (2.0)	202 (1.5)	1 (0.3)	*** (***)	4 (1.3)	206 (2.9)!
New York	59 (2.2)	228 (1.4)	13 (1.6)	198 (2.7)	22 (1.7)	198 (2.3)	4 (0.8)	235 (4.4)!	2 (0.4)	*** (***)
North Carolina	62 (1.7)	222 (1.1)	29 (1.3)	191 (1.3)	6 (0.7)	198 (4.2)	1 (0.2)	*** (***)	3 (0.9)	202 (4.9)!
North Dakota	91 (1.0)	229 (0.8)	0 (0.2)	*** (***)	4 (0.6)	213 (3.6)	1 (0.2)	*** (***)	4 (0.8)	211 (3.2)!
Ohio	79 (1.5)	221 (1.1)	11 (1.2)	193 (3.0)	6 (0.5)	206 (3.3)	1 (0.3)	*** (***)	2 (0.4)	216 (4.2)
Oklahoma	73 (1.5)	223 (1.0)	9 (1.2)	200 (2.6)	7 (0.8)	208 (2.5)	1 (0.2)	*** (***)	10 (0.8)	211 (2.0)
Pennsylvania	77 (1.6)	230 (1.2)	12 (1.6)	192 (2.5)	7 (0.8)	203 (2.3)	2 (0.4)	*** (***)	1 (0.3)	*** (***)
Rhode Island	78 (2.1)	221 (1.3)	6 (1.0)	189 (3.4)	11 (1.1)	188 (2.8)	3 (0.4)	191 (4.3)	2 (0.3)	*** (***)
South Carolina	55 (1.7)	224 (1.2)	37 (1.8)	193 (1.1)	6 (0.8)	198 (2.7)	1 (0.2)	*** (***)	1 (0.3)	*** (***)
Tennessee	69 (2.1)	217 (1.2)	23 (1.9)	191 (1.9)	5 (0.8)	191 (4.2)	1 (0.4)	*** (***)	1 (0.2)	*** (***)
Texas	49 (1.8)	228 (1.7)	14 (1.8)	197 (2.0)	34 (2.3)	207 (1.9)	2 (0.4)	234 (4.5)	1 (0.2)	*** (***)
Utah	86 (1.0)	225 (1.0)	1 (0.2)	*** (***)	10 (0.8)	208 (2.2)	2 (0.3)	*** (***)	2 (0.3)	*** (***)
Virginia	67 (1.4)	228 (1.5)	23 (1.3)	196 (1.5)	5 (0.6)	211 (3.4)	3 (0.4)	236 (4.6)	1 (0.3)	*** (***)
West Virginia	90 (0.9)	215 (1.0)	3 (0.4)	202 (4.4)	5 (0.8)	202 (3.0)	1 (0.2)	*** (***)	2 (0.2)	*** (***)
Wisconsin	81 (1.4)	233 (0.9)	6 (1.0)	194 (2.9)	7 (0.7)	211 (3.0)	2 (0.5)	*** (***)	3 (1.1)	206 (8.0)!
Wyoming	82 (1.4)	227 (0.9)	1 (0.2)	*** (***)	11 (0.9)	214 (1.8)	1 (0.2)	*** (***)	5 (1.2)	211 (4.0)!
TERRITORY										
Guam	12 (0.7)	205 (2.0)	4 (0.4)	183 (5.4)	20 (0.8)	179 (2.1)	62 (1.0)	193 (1.2)	2 (0.4)	*** (***)

The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. The percentages for race ethnicity may not add to 100 percent because some students categorized themselves as "other." ***Sample size insufficient to permit reliable estimate. There were fewer than 62 students. ! Interpret with caution - the nature of the sample does not allow accurate determination of the variability of this estimated statistic.

TABLE 2.2 | Average Mathematics Proficiency by Race/Ethnicity (continued)

PUBLIC SCHOOLS	Grade 8 - 1992									
	White		Black		Hispanic		Asian / Pacific Islander		American Indian	
	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency
NATION	69 (0.4)	276 (1.1)	16 (0.2)	236 (1.3)	10 (0.3)	245 (1.3)	2 (0.2)	287 (6.6)	1 (0.2)	254 (2.9)
Northeast	67 (2.6)	279 (3.3)	19 (1.5)	239 (3.8)	10 (1.7)	241 (3.8)!	2 (0.5)	*** (***)	1 (0.3)	*** (***)
Southeast	68 (1.8)	269 (1.2)	27 (1.8)	233 (1.7)	4 (0.7)	240 (2.8)!	1 (0.3)	*** (***)	1 (0.2)	*** (***)
Central	79 (2.0)	280 (2.0)	13 (1.9)	239 (3.5)	5 (0.8)	246 (4.2)	2 (0.5)	*** (***)	1 (0.4)	*** (***)
West	63 (1.5)	277 (2.4)	8 (1.3)	234 (3.5)	21 (1.7)	246 (1.6)	5 (0.8)	286(11.3)	2 (0.7)	*** (***)
STATES										
Alabama	61 (2.3)	264 (1.4)	32 (2.1)	231 (2.2)	4 (0.6)	220 (5.3)	1 (0.2)	*** (***)	2 (0.4)	*** (***)
Arizona	60 (2.1)	275 (1.1) >	4 (0.5)	251 (3.4)	28 (1.6)	247 (2.7)	2 (0.3)	*** (***)	6 (1.3)	251 (2.7)»
Arkansas	72 (1.4)	265 (1.0)	22 (1.3)	230 (1.9)	4 (0.4)	228 (4.1)	1 (0.2)	*** (***)	1 (0.2)	*** (***)
California	44 (1.8)	276 (1.9)	7 (1.1)	233 (3.6)	38 (1.7)	240 (2.0)	11 (1.0)	276 (2.9)	1 (0.2)	*** (***)
Colorado	74 (1.2)	278 (1.0) >	4 (0.6)	241 (4.4)	18 (1.1)	254 (1.7) >	2 (0.3)	*** (***)	2 (0.3)	*** (***)
Connecticut	72 (1.6)	283 (0.9)»	12 (1.1)	242 (2.9)	12 (0.9)	241 (2.4)	3 (0.4)	287 (8.0)	0 (0.1)	*** (***)
Delaware	65 (0.9)	272 (1.0) >	25 (1.1)	241 (1.8)	6 (0.6)	239 (3.4)	2 (0.3)	*** (***)	2 (0.3)	*** (***)
Dist. Columbia	3 (0.2)	*** (***)	85 (0.8)	233 (0.9)	10 (0.7)	225 (3.8)	1 (0.2)	*** (***)	1 (0.3)	*** (***)
Florida	56 (2.1)	273 (1.3)»	23 (2.0)	236 (2.3)	18 (2.0)	245 (2.5)	2 (0.3)	*** (***)	1 (0.2)	*** (***)
Georgia	59 (2.1)	270 (1.3)	35 (1.9)	241 (1.3)	4 (0.5)	233 (5.5)	2 (0.3)	*** (***)	0 (0.1)	*** (***)
Hawaii	17 (0.9)	265 (1.6)	3 (0.3)	*** (***)	11 (0.7)	238 (2.2)	66 (1.1)	259 (1.1)»	1 (0.2)	*** (***)
Idaho	88 (0.7)	277 (0.8) >	1 (0.2)	*** (***)	8 (0.6)	253 (2.3)	1 (0.2)	*** (***)	3 (0.4)	259 (4.2)
Indiana	85 (1.3)	273 (1.2)	8 (1.1)	243 (2.6)	4 (0.6)	249 (4.6)	1 (0.2)	*** (***)	1 (0.2)	*** (***)
Iowa	92 (0.7)	284 (1.0) >	2 (0.4)	*** (***)	4 (0.4)	261 (3.8)	1 (0.2)	*** (***)	1 (0.2)	*** (***)
Kentucky	87 (1.0)	264 (1.1) >	9 (1.0)	241 (2.6)	3 (0.4)	231 (4.6)	1 (0.2)	*** (***)	1 (0.2)	*** (***)
Louisiana	54 (1.7)	263 (1.7)	39 (1.5)	232 (2.2)	5 (0.5)	228 (3.5)	2 (0.4)	*** (***)	1 (0.2)	*** (***)
Maine	94 (0.5)	279 (1.0)	0 (0.1)	*** (***)	2 (0.3)	*** (***)	1 (0.2)	*** (***)	3 (0.4)	261 (4.5)
Maryland	60 (1.8)	278 (1.5)	29 (1.8)	239 (2.0)	6 (0.6)	240 (3.3)	3 (0.5)	287 (4.7)	1 (0.2)	*** (***)
Massachusetts	83 (1.1)	277 (1.1)	5 (1.0)	243 (5.0)	8 (1.5)	240 (3.4)	2 (0.4)	*** (***)	1 (0.2)	*** (***)
Michigan	73 (1.6)	276 (1.5) >	18 (1.9)	232 (1.8)	5 (0.8)	248 (4.0)	1 (0.3)	*** (***)	2 (0.3)	*** (***)
Minnesota	91 (1.0)	284 (1.0)»	2 (0.3)	*** (***)	3 (0.5)	253 (3.8) >	2 (0.3)	*** (***)	1 (0.4)	*** (***)
Mississippi	49 (1.9)	262 (1.4)	44 (1.8)	230 (1.4)	6 (0.6)	223 (3.1)	0 (0.1)	*** (***)	1 (0.2)	*** (***)
Missouri	82 (1.5)	275 (1.0)	12 (1.4)	241 (2.9)	3 (0.3)	251 (4.2)	1 (0.2)	*** (***)	2 (0.3)	*** (***)
Nebraska	87 (1.1)	281 (1.1)	5 (0.9)	236 (4.7)	6 (0.7)	254 (3.1)	1 (0.2)	*** (***)	2 (0.4)	*** (***)
New Hampshire	91 (1.6)	278 (0.9) >	1 (0.2)	*** (***)	3 (0.3)	258 (5.1)	1 (0.2)	*** (***)	1 (0.2)	*** (***)
New Jersey	61 (2.5)	283 (1.4)	17 (2.4)	242 (2.7)	14 (1.5)	247 (3.5)	6 (0.7)	297 (3.3)	1 (0.2)	*** (***)
New Mexico	44 (1.5)	272 (1.2)	2 (0.4)	*** (***)	49 (1.4)	248 (1.1)	1 (0.3)	*** (***)	4 (0.7)«	249 (3.0) >
New York	61 (2.7)	279 (1.1) >	17 (2.2)	232 (4.5)	14 (2.0)	243 (4.8)	4 (0.6)	281 (6.8)	1 (0.3)	*** (***)
North Carolina	68 (1.4) >	266 (1.0) >	27 (1.3)	238 (1.7)	3 (0.3) <	238 (4.7) >	1 (0.2)	*** (***)	2 (0.4)	*** (***)
North Dakota	93 (0.8)	284 (1.2)	0 (0.1)	*** (***)	3 (0.3)	*** (***)	1 (0.2)	*** (***)	3 (0.7)	261 (4.3)!»
Ohio	80 (1.9)	274 (1.4) >	14 (1.7)	234 (2.3)	4 (0.5)	245 (4.6)	1 (0.2)	*** (***)	2 (0.3)	*** (***)
Oklahoma	75 (1.6)	272 (1.0)	8 (1.1)	238 (3.0)	6 (0.6)	252 (3.2)	2 (0.3)	*** (***)	10 (1.0)	261 (3.2)
Pennsylvania	83 (1.4)	276 (1.1) >	11 (1.6)	237 (4.6)	3 (0.7)	246 (3.9)! >	1 (0.3)	*** (***)	1 (0.3)	*** (***)
Rhode Island	81 (0.7)	271 (0.9)»	6 (0.6)	240 (2.9) >	8 (0.4)	232 (2.7)	3 (0.4)	264 (3.4)	2 (0.3)	*** (***)
South Carolina	58 (1.5)	273 (1.1)	35 (1.3)	241 (1.0)	6 (0.6)	233 (2.6)	1 (0.2)	*** (***)	1 (0.2)	*** (***)
Tennessee	75 (2.0)	266 (1.1)	21 (2.1)	234 (2.4)	3 (0.3)	227 (4.8)	0 (0.1)	*** (***)	1 (0.2)	*** (***)
Texas	48 (1.9)	279 (1.6) >	12 (1.6)	243 (2.0) >	36 (2.0)	248 (1.2)	3 (0.4)	301 (4.9)	1 (0.3)	*** (***)
Utah	90 (0.9)	276 (0.8)	1 (0.2)	*** (***)	7 (0.6)	253 (2.3)	2 (0.3)	*** (***)	2 (0.2)	*** (***)
Virginia	69 (1.9)	275 (1.1)	22 (1.6)	244 (1.9)	5 (0.6)	254 (4.0)	4 (0.5)	280 (4.0) <	1 (0.2)	*** (***)
West Virginia	91 (0.9)	260 (1.0)	4 (0.8)	243 (3.7)	3 (0.3) <	230 (4.9)	0 (0.1)	*** (***)	2 (0.3)	*** (***)
Wisconsin	86 (1.7)	282 (1.2)	7 (1.2)	246 (6.8)	4 (0.8)	246 (4.0)	1 (0.2) <	*** (***)	2 (0.6)	261 (6.0)!
Wyoming	86 (1.7)	277 (0.8) >	1 (0.2)	*** (***)	9 (0.6)	257 (2.1)	1 (0.2)	*** (***)	4 (1.6)	250 (2.4)!
TERRITORIES										
Guam	5 (0.5) <	266 (5.4)	1 (0.3)	*** (***)	15 (0.9) <	218 (2.8)	76 (1.1) >	236 (1.1)	1 (0.1)	*** (***)
Virgin Islands	1 (0.4)	*** (***)	77 (1.1)	224 (1.2)	21 (0.9)	213 (1.9)	0 (0.1)	*** (***)	0 (0.2)	*** (***)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

TABLE 2.2 | Average Mathematics Proficiency by Race/Ethnicity (continued)

PUBLIC SCHOOLS	Grade 8 - 1990									
	White		Black		Hispanic		Asian / Pacific Islander		American Indian	
	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency
NATION	70 (0.5)	270 (1.5)	16 (0.3)	237 (2.8)	10 (0.4)	242 (2.8)	2 (0.5)	279 (5.4)!	2 (0.7)	244 (9.0)!
Northeast	80 (4.2)	274 (2.6)	12 (4.2)	246 (8.1)!	5 (1.2)	*** (***)	3 (1.1)	*** (***)	1 (0.3)	*** (***)
Southeast	63 (3.0)	265 (2.9)	32 (3.0)	235 (4.5)	3 (0.8)	*** (***)	1 (0.4)	*** (***)	0 (0.1)	*** (***)
Central	79 (2.6)	271 (2.4)	13 (3.2)	231 (5.2)!	5 (1.0)	*** (***)	1 (0.4)	*** (***)	1 (0.4)	*** (***)
West	63 (1.9)	269 (3.3)	7 (2.0)	245 (5.9)!	21 (1.5)	244 (3.4)	4 (1.3)	*** (***)	4 (2.3)	*** (***)
STATES										
Alabama	64 (1.9)	263 (1.0)	29 (1.8)	234 (1.6)	5 (0.6)	227 (3.7)	1 (0.3)	*** (***)	1 (0.2)	*** (***)
Arizona	59 (1.8)	271 (1.1)	3 (0.4)	245 (3.2)	29 (1.3)	242 (1.9)	2 (0.3)	*** (***)	7 (1.5)	235 (2.5)!
Arkansas	72 (1.5)	265 (0.9)	22 (1.5)	232 (1.2)	4 (0.4)	230 (4.0)	1 (0.2)	*** (***)	2 (0.3)	*** (***)
California	45 (1.8)	271 (1.5)	7 (0.8)	233 (3.4)	35 (1.4)	236 (1.6)	12 (1.1)	271 (2.8)	2 (0.4)	*** (***)
Colorado	73 (1.3)	274 (1.0)	4 (1.0)	237 (3.1)!	19 (1.6)	247 (1.4)	2 (0.3)	*** (***)	2 (0.3)	*** (***)
Connecticut	77 (1.5)	278 (0.9)	10 (1.0)	241 (2.4)	10 (0.9)	237 (2.7)	2 (0.3)	*** (***)	1 (0.2)	*** (***)
Delaware	68 (1.0)	268 (1.0)	24 (0.9)	242 (1.8)	5 (0.5)	242 (4.9)	1 (0.2)	*** (***)	1 (0.3)	*** (***)
Dist. Columbia	3 (0.4)	*** (***)	84 (1.0)	231 (0.7)	10 (0.6)	217 (3.1)	1 (0.2)	*** (***)	2 (0.3)	*** (***)
Florida	60 (2.0)	26[illegible] (1.4)	20 (1.2)	231 (1.7)	17 (2.1)	245 (2.6)	2 (0.4)	272 (5.1)	1 (0.2)	*** (***)
Georgia	59 (1.8)	271 (1.5)	33 (1.7)	240 (1.5)	6 (0.6)	231 (3.3)	1 (0.2)	*** (***)	1 (0.1)	*** (***)
Hawaii	18 (0.8)	263 (2.0)	2 (0.3)	*** (***)	10 (0.6)	231 (2.5)	67 (1.0)	252 (1.0)	1 (0.2)	*** (***)
Idaho	90 (0.8)	274 (0.8)	0 (0.1)	*** (***)	6 (0.6)	249 (2.8)	1 (0.3)	*** (***)	2 (0.4)	252 (4.9)
Indiana	84 (1.2)	271 (1.0)	9 (1.2)	243 (2.9)	4 (0.7)	245 (3.6)	1 (0.3)	*** (***)	1 (0.3)	*** (***)
Iowa	91 (0.7)	280 (1.1)	2 (0.7)	*** (***)	4 (0.4)	256 (3.9)	1 (0.2)	*** (***)	1 (0.3)	*** (***)
Kentucky	85 (1.1)	260 (1.2)	9 (1.0)	240 (2.4)	4 (0.5)	229 (3.5)	1 (0.2)	*** (***)	1 (0.2)	*** (***)
Louisiana	55 (2.1)	259 (1.4)	38 (1.9)	230 (1.3)	5 (0.6)	226 (4.2)	1 (0.2)	*** (***)	1 (0.3)	*** (***)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	59 (1.5)	273 (1.5)	28 (1.5)	238 (1.9)	7 (0.8)	237 (2.9)	4 (0.7)	291 (4.3)	1 (0.3)	*** (***)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	77 (1.4)	271 (1.0)	13 (1.1)	232 (1.5)	5 (0.6)	243 (3.2)	2 (0.4)	*** (***)	2 (0.5)	*** (***)
Minnesota	90 (0.9)	278 (0.9)	2 (0.5)	239 (4.7)!	3 (0.4)	239 (5.0)	3 (0.4)	270 (5.6)	2 (0.5)	*** (***)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	88 (0.8)	279 (1.1)	5 (0.4)	235 (5.2)	5 (0.5)	253 (4.1)	1 (0.2)	*** (***)	1 (0.2)	*** (***)
New Hampshire	94 (0.6)	274 (0.9)	1 (0.2)	*** (***)	2 (0.4)	254 (4.2)	1 (0.2)	*** (***)	2 (0.2)	*** (***)
New Jersey	66 (2.0)	279 (1.2)	15 (2.0)	242 (2.3)	13 (1.0)	244 (2.2)	5 (0.6)	296 (4.3)	1 (0.2)	*** (***)
New Mexico	40 (1.3)	272 (1.2)	2 (0.4)	*** (***)	45 (1.3)	247 (1.1)	1 (0.3)	*** (***)	11 (0.8)	238 (1.4)
New York	60 (1.9)	274 (1.1)	17 (1.6)	236 (3.1)	17 (1.7)	237 (2.9)	4 (0.8)	278 (6.9)!	1 (0.3)	*** (***)
North Carolina	62 (1.7)	262 (1.3)	30 (1.3)	233 (1.3)	5 (0.5)	218 (3.3)	1 (0.2)	*** (***)	3 (0.9)	233 (4.3)!
North Dakota	91 (1.4)	284 (1.0)	1 (0.3)	*** (***)	3 (0.4)	248 (6.0)	1 (0.4)	*** (***)	5 (1.2)	242 (2.6)!
Ohio	82 (0.9)	269 (1.0)	11 (0.8)	233 (1.7)	3 (0.4)	237 (4.4)	1 (0.3)	*** (***)	1 (0.3)	*** (***)
Oklahoma	74 (1.8)	269 (1.3)	11 (1.2)	237 (2.2)	5 (0.7)	246 (4.3)	2 (0.4)	*** (***)	9 (1.0)	255 (2.5)
Pennsylvania	81 (2.5)	272 (1.1)	12 (2.3)	239 (3.1)	5 (0.8)	229 (4.5)	1 (0.2)	*** (***)	1 (0.3)	*** (***)
Rhode Island	83 (0.8)	266 (0.7)	5 (0.5)	227 (3.1)	8 (0.5)	230 (2.4)	2 (0.3)	*** (***)	1 (0.2)	*** (***)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	47 (2.1)	273 (1.3)	13 (1.3)	236 (1.8)	36 (2.1)	245 (1.9)	2 (0.6)	*** (***)	1 (0.2)	*** (***)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	68 (1.5)	272 (1.6)	23 (1.5)	242 (1.6)	5 (0.5)	243 (4.1)	4 (0.4)	295 (4.2)	1 (0.2)	*** (***)
West Virginia	90 (0.7)	258 (0.9)	3 (0.5)	235 (4.1)	4 (0.4)	232 (4.2)	1 (0.2)	*** (***)	2 (0.3)	*** (***)
Wisconsin	85 (1.2)	279 (1.1)	8 (1.1)	237 (4.2)	4 (0.3)	250 (3.8)	2 (0.3)	*** (***)	1 (0.2)	*** (***)
Wyoming	86 (0.8)	275 (0.7)	1 (0.2)	*** (***)	9 (0.6)	255 (2.2)	1 (0.2)	*** (***)	3 (0.4)	257 (3.4)
TERRITORIES										
Guam	7 (0.7)	257 (3.5)	1 (0.4)	*** (***)	19 (1.0)	210 (1.9)	72 (1.2)	235 (0.9)	1 (0.2)	*** (***)
Virgin Islands	2 (0.2)	*** (***)	77 (1.1)	221 (1.1)	20 (1.0)	209 (1.5)	0 (0.2)	*** (***)	1 (0.2)	*** (***)

(xxx) Did not participate in the 1990 Trial State Assessment.

Eighth-grade White students' average mathematics proficiency increased from 1990 to 1992 in Connecticut, Delaware, Florida, Idaho, Iowa, Michigan, Minnesota, New Hampshire, New York, North Carolina, Ohio, Rhode Island, and Texas. Black students' performance improved from 1990 to 1992 in Rhode Island and Texas and for Hispanic students, improvements were made in Colorado, North Carolina, and Pennsylvania. Performance for Asian/Pacific Islander students improved in Hawaii and gains by American Indian students were made in Arizona, New Mexico, and North Dakota.

The state-by-state percentages of fourth and eighth graders performing at or above the three achievement levels and below the Basic level for the five racial/ethnic groups in 1992 and 1990 are displayed in TABLE 2.3.

At grade 4, across participating jurisdictions, from 1 to 5 percent of the White students were estimated to be at the Advanced level, with the exception of the District of Columbia. Although the White fourth graders comprised a small percentage of the population in the District of Columbia (5 percent), 14 percent were estimated to have reached the Advanced Level. Only Minnesota and Guam had as many as 1 percent of their Black students estimated to be at or above the Advanced level. Connecticut, Florida, Maine, Massachusetts, Michigan, Missouri, Nebraska, New Hampshire, New Jersey, Pennsylvania and Wisconsin each had about 1 percent of their Hispanic students reaching the Advanced level. Ten percent of the Asian/Pacific Islander students in New York were estimated to be at or above the Advanced level. In Maryland, Massachusetts, New Jersey, Texas, and Virginia, about 6 to 7 percent of the Asian/Pacific Islander students reached this level, as did approximately 4 percent in California, 2 percent in Hawaii, and 1 percent in Colorado. Small percentages (about 1 to 2 percent) of the American Indian fourth graders reached the Advanced level in California, Colorado, Ohio, and Wyoming.

TABLE 2.3 | Achievement Levels by Race/Ethnicity

PUBLIC SCHOOLS	Grade 4 - 1992									
	Percentage of Students At or Above Advanced					Percentage of Students At or Above Proficient				
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	White	Black	Hispanic	Asian / Pacific Islander	American Indian
NATION	3 (0.4)	0 (0.1)	0 (0.3)	5 (2.3)	2 (1.4)	23 (1.5)	2 (0.7)	5 (1.0)	30 (5.0)	10 (3.8)
Northeast	4 (1.2)	0 (0.2)	0 (0.7)	*** (***)	*** (***)	31 (3.8)	3 (1.5)	5 (1.5)	*** (***)	*** (***)
Southeast	2 (0.6)	0 (0.1)	0 (0.4)	*** (***)	*** (***)	16 (2.1)	2 (0.9)	5 (1.9)	*** (***)	*** (***)
Central	2 (0.7)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	24 (2.4)	3 (2.0)	5 (3.3)	*** (***)	*** (***)
West	3 (1.0)	0 (0.0)	0 (0.3)	6 (3.1)	*** (***)	21 (2.9)	2 (1.4)	5 (1.5)	30 (5.5)	*** (***)
STATES										
Alabama	1 (0.3)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	16 (1.7)	1 (0.4)	3 (2.3)	*** (***)	*** (***)
Arizona	2 (0.4)	0 (0.0)	0 (0.2)	*** (***)	0 (0.2)	20 (1.2)	4 (2.5)	5 (0.9)	*** (***)	3 (1.7)
Arkansas	1 (0.3)	0 (0.0)	0 (0.0)	*** (***)	0 (0.8)	14 (1.1)	1 (0.7)	1 (1.2)	*** (***)	10 (3.8)
California	3 (0.7)	0 (0.0)	0 (0.1)	4 (1.6)	2 (2.9)	19 (1.8)	2 (1.1)	4 (0.9)	21 (3.8)	10 (6.0)
Colorado	3 (0.6)	0 (0.0)	0 (0.3)	1 (1.6)	1 (1.9)	23 (1.4	3 (1.4)	7 (1.4)	24 (6.2)	11 (4.6)
Connecticut	5 (0.8)	0 (0.6)	1 (0.7)	*** (***)	*** (***)	32 (1.7)	3 (1.3)	8 (1.9)	*** (***)	*** (***)
Delaware	3 (0.6)	0 (0.4)	0 (0.4)	*** (***)	*** (***)	23 (1.3)	3 (1.0)	4 (3.1)	*** (***)	*** (***)
Dist. Columbia	14 (3.7)	0 (0.1)	0 (0.2)	*** (***)	*** (***)	52 (6.0)	3 (0.4)	2 (1.0)	*** (***)	*** (***)
Florida	2 (0.5)	0 (0.3)	1 (0.4)	*** (***)	*** (***)	19 (1.8)	2 (0.6)	8 (1.5)	*** (***)	*** (***)
Georgia	2 (0.7)	0 (0.2)	0 (0.3)	*** (***)	*** (***)	25 (1.6)	3 (0.8)	4 (1.6)	*** (***)	*** (***)
Hawaii	2 (1.1)	0 (0.0)	0 (0.2)	2 (0.4)	*** (***)	20 (2.3)	5 (2.3)	6 (1.4)	16 (1.3)	*** (***)
Idaho	1 (0.4)	*** (***)	0 (0.3)	*** (***)	0 (0.0)	18 (1.2)	*** (***)	5 (1.4)	*** (***)	5 (3.0)
Indiana	2 (0.4)	0 (0.2)	0 (0.0)	*** (***)	*** (***)	19 (1.3)	2 (0.8)	4 (1.6)	*** (***)	*** (***)
Iowa	3 (0.5)	0 (0.0)!	0 (0.7)	*** (***)	*** (***)	29 (1.3)	2 (2.0)!	15 (3.4)	*** (***)	*** (***)
Kentucky	2 (0.5)	0 (0.0)	0 (1.4)	*** (***)	*** (***)	14 (1.2)	4 (2.0)	4 (2.6)	*** (***)	*** (***)
Louisiana	1 (0.4)	0 (0.1)	0 (0.3)	*** (***)	*** (***)	13 (1.3)	2 (0.5)	5 (2.1)	*** (***)	*** (***)
Maine	3 (0.6)	*** (***)	1 (1.8)	*** (***)	*** (***)	29 (1.7)	*** (***)	14 (4.9)	*** (***)	*** (***)
Maryland	4 (0.6)	0 (0.1)	0 (0.7)	6 (2.6)	*** (***)	27 (1.6)	3 (0.8)	9 (3.1)	34 (5.6)	*** (***)
Massachusetts	3 (0.5)	0 (0.0)	1 (0.8)	7 (4.7)	*** (***)	28 (1.6)	2 (1.5)	9 (2.5)	30 (8.1)	*** (***)
Michigan	2 (0.6)	0 (0.4)	1 (0.9)	*** (***)	0 (0.0)	23 (1.9)	2 (1.4)	9 (2.6)	*** (***)	9 (3.1)
Minnesota	4 (0.6)	1 (0.6)	0 (0.2)	*** (***)	*** (***)	29 (1.4)	4 (1.9)	12 (2.7)	*** (***)	*** (***)
Mississippi	1 (0.3)	0 (0.0)	0 (0.7)	*** (***)	*** (***)	14 (1.4)	1 (0.4)	2 (1.5)	*** (***)	*** (***)
Missouri	2 (0.4)	0 (0.0)	1 (0.9)	*** (***)	*** (***)	23 (1.5)	1 (0.8)	11 (2.9)	*** (***)	*** (***)
Nebraska	3 (0.6)	0 (0.0)	1 (1.0)	*** (***)	*** (***)	25 (1.9)	4 (2.3)	9 (3.4)	*** (***)	*** (***)
New Hampshire	3 (0.7)	*** (***)	1 (1.2)	*** (***)	*** (***)	27 (1.7)	*** (***)	12 (3.2)	*** (***)	*** (***)
New Jersey	4 (1.0)	0 (0.1)	1 (0.5)	7 (3.5)	*** (***)	33 (2.0)	3 (1.1)	7 (1.9)	40 (4.8)	*** (***)
New Mexico	2 (0.6)	0 (0.7)	0 (0.3)	*** (***)	0 (0.0)!	19 (1.9)	4 (3.6)	5 (1.2)	*** (***)	4 (2.6)!
New York	3 (0.5)	0 (0.1)	0 (0.1)	10 (4.4)!	*** (***)	24 (1.9)	4 (1.2)	5 (1.2)	37 (6.6)!	*** (***)
North Carolina	3 (0.5)	0 (0.2)	0 (0.3)	*** (***)	0 (0.0)!	19 (1.2)	2 (0.6)	7 (2.8)	*** (***)	8 (4.0)!
North Dakota	2 (0.3)	*** (***)	0 (0.0)	*** (***)	0 (0.0)!	24 (1.2)	*** (***)	7 (3.4)	*** (***)	8 (3.4)!
Ohio	2 (0.4)	0 (0.4)	0 (0.4)	*** (***)	2 (2.4)	19 (1.3)	3 (1.3)	8 (1.9)	*** (***)	12 (4.6)
Oklahoma	2 (0.5)	0 (0.0)	0 (0.0)	*** (***)	0 (0.2)	17 (1.4)	3 (1.6)	7 (2.5)	*** (***)	7 (2.0)
Pennsylvania	3 (0.7)	0 (0.1)	1 (0.7)	*** (***)	*** (***)	27 (1.6)	2 (0.9)	8 (2.4)	*** (***)	*** (***)
Rhode Island	2 (0.5)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	17 (1.4)	2 (1.7)	2 (0.9)	1 (1.5)	*** (***)
South Carolina	2 (0.5)	0 (0.1)	0 (0.4)	*** (***)	*** (***)	22 (1.7)	2 (0.5)	7 (2.0)	*** (***)	*** (***)
Tennessee	1 (0.2)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	13 (1.2)	1 (0.6)	3 (2.4)	*** (***)	*** (***)
Texas	3 (0.9)	0 (0.3)	0 (0.4)	6 (3.1)	*** (***)	24 (2.0)	3 (1.1)	8 (1.3)	34 (9.5)	*** (***)
Utah	2 (0.4)	*** (***)	0 (0.0)	*** (***)	*** (***)	21 (1.1)	*** (***)	8 (2.1)	*** (***)	*** (***)
Virginia	4 (0.9)	0 (0.1)	0 (0.0)	7 (4.1)	*** (***)	25 (2.0)	3 (0.9)	10 (3.5)	28 (7.7)	*** (***)
West Virginia	1 (0.3)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	14 (1.0)	3 (2.7)	6 (3.1)	*** (***)	*** (***)
Wisconsin	4 (0.5)	0 (0.3)	1 (0.6)	*** (***)	0 (0.0)!	30 (1.6)	2 (1.0)	10 (2.7)	*** (***)	6 (2.5)!
Wyoming	2 (0.4)	*** (***)	0 (0.2)	*** (***)	1 (1.2)!	21 (1.4)	*** (***)	9 (1.6)	*** (***)	9 (3.4)!
TERRITORY										
Guam	1 (0.8)	1 (0.8)	0 (0.3)	0 (0.2)	*** (***)	11 (1.9)	3 (2.9)	2 (0.8)	5 (0.7)	*** (***)

The standard errors of the estimated percentages appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. Descriptions of mathematics proficiency at the three achievement levels are found in Chapter One. ***Sample size insufficient to permit reliable estimate. There were fewer than 62 students. ! Interpret with caution - the nature of the sample does not allow accurate determination of the variability of this estimated statistic.

TABLE 2.3 | Achievement Levels by Race/Ethnicity (continued)

	Grade 4 - 1992									
	Percentage of Students At or Above Basic					Percentage of Students Below Basic				
PUBLIC SCHOOLS	White	Black	Hispanic	Asian / Pacific Islander	American Indian	White	Black	Hispanic	Asian / Pacific Islander	American Indian
NATION	71 (1.4)	24 (1.9)	35 (2.3)	77 (3.5)	45 (4.9)	29 (1.4)	76 (1.9)	65 (2.3)	23 (3.5)	55 (4.9)
Northeast	76 (3.4)	29 (4.0)	33 (5.9)	*** (***)	*** (***)	24 (3.4)	71 (4.0)	67 (5.9)	*** (***)	*** (***)
Southeast	62 (2.9)	22 (2.5)	35 (6.3)	*** (***)	*** (***)	38 (2.9)	78 (2.5)	65 (6.3)	*** (***)	*** (***)
Central	74 (2.6)	23 (5.9)	34 (5.5)	*** (***)	*** (***)	26 (2.6)	77 (5.9)	66 (5.5)	*** (***)	*** (***)
West	70 (2.5)	22 (6.3)	35 (3.2)	75 (4.1)	*** (***)	30 (2.5)	78 (6.3)	65 (3.2)	25 (4.1)	*** (***)
STATES										
Alabama	59 (2.4)	18 (1.4)	28 (5.3)	*** (***)	*** (***)	41 (2.4)	82 (1.4)	72 (5.3)	*** (***)	*** (***)
Arizona	70 (1.6)	31 (6.4)	38 (2.0)	*** (***)	27 (3.7)	30 (1.6)	69 (6.4)	62 (2.0)	*** (***)	73 (3.7)
Arkansas	59 (1.4)	20 (2.8)	30 (4.2)	*** (***)	54 (6.3)	41 (1.4)	80 (2.8)	70 (4.2)	*** (***)	46 (6.3)
California	63 (2.7)	23 (2.6)	28 (2.4)	65 (3.3)	50 (9.3)	37 (2.7)	77 (2.6)	72 (2.4)	35 (3.3)	50 (9.3)
Colorado	71 (1.5)	34 (4.8)	44 (2.5)	64 (6.3)	53 (7.0)	29 (1.5)	66 (4.8)	56 (2.5)	36 (6.3)	47 (7.0)
Connecticut	80 (1.1)	26 (3.1)	40 (4.3)	*** (***)	*** (***)	20 (1.1)	75 (3.1)	60 (4.3)	*** (***)	*** (***)
Delaware	69 (1.5)	28 (2.9)	31 (3.4)	*** (***)	*** (***)	31 (1.5)	72 (2.9)	69 (3.4)	*** (***)	*** (***)
Dist. Columbia	80 (4.5)	22 (1.1)	16 (2.2)	*** (***)	*** (***)	20 (4.5)	78 (1.1)	84 (2.2)	*** (***)	*** (***)
Florida	68 (1.8)	23 (2.7)	43 (3.5)	*** (***)	*** (***)	32 (1.8)	77 (2.7)	57 (3.5)	*** (***)	*** (***)
Georgia	74 (1.7)	29 (2.2)	32 (4.6)	*** (***)	*** (***)	26 (1.7)	71 (2.2)	68 (4.6)	*** (***)	*** (***)
Hawaii	61 (2.6)	34 (6.4)	35 (3.6)	56 (2.2)	*** (***)	39 (2.6)	66 (6.4)	65 (3.6)	44 (2.2)	*** (***)
Idaho	68 (1.8)	*** (***)	38 (4.5)	*** (***)	56 (6.7)	32 (1.8)	*** (***)	62 (4.5)	*** (***)	44 (6.7)
Indiana	67 (1.3)	25 (4.1)	46 (4.4)	*** (***)	*** (***)	33 (1.3)	75 (4.1)	54 (4.4)	*** (***)	*** (***)
Iowa	76 (1.3)	30 (6.3)!	63 (5.8)	*** (***)	*** (***)	24 (1.3)	70 (6.3)!	37 (5.8)	*** (***)	*** (***)
Kentucky	56 (1.5)	33 (3.6)	31 (4.6)	*** (***)	*** (***)	44 (1.5)	67 (3.6)	69 (4.6)	*** (***)	*** (***)
Louisiana	59 (2.5)	19 (1.8)	35 (6.3)	*** (***)	*** (***)	41 (2.5)	81 (1.8)	65 (6.3)	*** (***)	*** (***)
Maine	77 (1.3)	*** (***)	64 (5.8)	*** (***)	*** (***)	23 (1.3)	*** (***)	36 (5.8)	*** (***)	*** (***)
Maryland	71 (1.6)	28 (2.0)	47 (4.6)	79 (4.4)	*** (***)	29 (1.6)	72 (2.0)	53 (4.6)	21 (4.4)	*** (***)
Massachusetts	77 (1.3)	26 (5.0)	42 (4.2)	65 (8.9)	*** (***)	23 (1.3)	74 (5.0)	58 (4.2)	35 (8.9)	*** (***)
Michigan	72 (2.0)	20 (3.7)	44 (3.8)	*** (***)	53 (7.5)	28 (2.0)	80 (3.7)	56 (3.8)	*** (***)	47 (7.5)
Minnesota	76 (1.4)	29 (7.0)	45 (4.8)	*** (***)	*** (***)	24 (1.4)	71 (7.0)	55 (4.8)	*** (***)	*** (***)
Mississippi	60 (1.7)	21 (1.7)	21 (3.8)	*** (***)	*** (***)	40 (1.7)	79 (1.7)	79 (3.8)	*** (***)	*** (***)
Missouri	72 (1.5)	29 (3.3)	45 (4.5)	*** (***)	*** (***)	28 (1.5)	71 (3.3)	55 (4.5)	*** (***)	*** (***)
Nebraska	74 (1.7)	19 (3.5)	49 (6.2)	*** (***)	*** (***)	26 (1.7)	81 (3.5)	51 (6.2)	*** (***)	*** (***)
New Hampshire	76 (1.5)	*** (***)	57 (6.1)	*** (***)	*** (***)	24 (1.5)	*** (***)	43 (6.1)	*** (***)	*** (***)
New Jersey	83 (1.6)	31 (3.9)	44 (4.6)	83 (5.5)	*** (***)	17 (1.6)	69 (3.9)	56 (4.6)	17 (5.5)	*** (***)
New Mexico	68 (2.4)	37 (7.9)	38 (2.5)	*** (***)	43 (8.7)!	32 (2.4)	63 (7.9)	62 (2.5)	*** (***)	57 (8.7)!
New York	73 (2.1)	33 (4.2)	35 (2.8)	74 (5.2)!	*** (***)	27 (2.1)	67 (4.2)	65 (2.8)	26 (5.2)!	*** (***)
North Carolina	67 (1.6)	25 (2.4)	37 (5.9)	*** (***)	42 (9.3)!	33 (1.6)	75 (2.4)	63 (5.9)	*** (***)	58 (9.3)!
North Dakota	76 (1.2)	*** (***)	52 (7.7)	*** (***)	50 (6.9)!	24 (1.2)	*** (***)	48 (7.7)	*** (***)	50 (6.9)!
Ohio	64 (1.6)	25 (3.5)	47 (4.8)	*** (***)	61 (7.0)	36 (1.6)	75 (3.5)	53 (4.8)	*** (***)	39 (7.0)
Oklahoma	68 (1.7)	31 (3.9)	47 (4.4)	*** (***)	49 (4.3)	32 (1.7)	69 (3.9)	53 (4.4)	*** (***)	51 (4.3)
Pennsylvania	76 (1.7)	25 (2.8)	39 (3.7)	*** (***)	*** (***)	24 (1.7)	75 (2.8)	61 (3.7)	*** (***)	*** (***)
Rhode Island	65 (2.1)	22 (4.3)	24 (3.6)	26 (4.9)	*** (***)	35 (2.1)	78 (4.3)	76 (3.6)	74 (4.9)	*** (***)
South Carolina	68 (1.6)	24 (1.9)	35 (4.4)	*** (***)	*** (***)	32 (1.6)	76 (1.9)	65 (4.4)	*** (***)	*** (***)
Tennessee	60 (2.1)	23 (2.7)	23 (5.9)	*** (***)	*** (***)	40 (2.1)	77 (2.7)	77 (5.9)	*** (***)	*** (***)
Texas	73 (2.2)	31 (4.1)	45 (2.8)	79 (4.7)	*** (***)	27 (2.2)	69 (4.1)	55 (2.8)	21 (4.7)	*** (***)
Utah	70 (1.6)	*** (***)	48 (3.6)	*** (***)	*** (***)	30 (1.6)	*** (***)	52 (3.6)	*** (***)	*** (***)
Virginia	72 (1.9)	27 (2.5)	50 (5.5)	84 (4.6)	*** (***)	28 (1.9)	73 (2.5)	50 (5.5)	16 (4.6)	*** (***)
West Virginia	55 (1.6)	41 (6.9)	40 (4.6)	*** (***)	*** (***)	45 (1.6)	59 (6.9)	60 (4.6)	*** (***)	*** (***)
Wisconsin	79 (1.2)	27 (3.7)	53 (4.6)	*** (***)	42 (8.4)!	21 (1.2)	73 (3.7)	47 (4.6)	*** (***)	58 (8.4)!
Wyoming	73 (1.4)	*** (***)	56 (3.6)	*** (***)	51 (6.3)!	27 (1.4)	*** (***)	44 (3.6)	*** (***)	49 (6.3)!
TERRITORY										
Guam	45 (3.7)	24 (6.2)	17 (2.4)	29 (1.5)	*** (***)	55 (3.7)	76 (6.2)	83 (2.4)	71 (1.5)	*** (***)

TABLE 2.3 | Achievement Levels by Race/Ethnicity (continued)

PUBLIC SCHOOLS	Grade 8 - 1992									
	Percentage of Students At or Above Advanced					Percentage of Students At or Above Proficient				
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	White	Black	Hispanic	Asian / Pacific Islander	American Indian
NATION	4 (0.6)	0 (0.4)	1 (0.3)	14 (5.1)	0 (0.0)	30 (1.4)	3 (0.8)	7 (0.9)	42 (8.6)	9 (3.6)
Northeast	7 (1.7)	1 (1.7)	1 (0.6)!	*** (***)	*** (***)	34 (3.8)	4 (2.7)	7 (2.5)!	*** (***)	*** (***)
Southeast	2 (0.6)	0 (0.1)	2 (1.9)!	*** (***)	*** (***)	22 (1.3)	2 (0.8)	7 (2.9)!	*** (***)	*** (***)
Central	4 (0.9)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	34 (3.2)	4 (1.8)	4 (1.9)	*** (***)	*** (***)
West	4 (1.3)	0 (0.2)	0 (0.5)	17 (8.3)	*** (***)	32 (2.6)	1 (0.8)	8 (1.1)	42(14.1)	*** (***)
STATES										
Alabama	2 (0.5)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	19 (1.5)	1 (0.4)	1 (1.4)	*** (***)	*** (***)
Arizona	3 (0.6)	0 (1.9)	0 (0.3)	*** (***)	0 (0.0)	26 (1.8)	6 (2.9)	7 (1.4)	*** (***)	8 (2.4)
Arkansas	1 (0.4)	0 (0.1)	1 (0.8)	*** (***)	*** (***)	17 (1.1)	2 (0.9)	5 (1.6)	*** (***)	*** (***)
California	4 (1.4)	0 (0.2)	0 (0.3)	6 (1.9)	*** (***)	30 (2.2)	3 (1.4)	6 (1.1)	33 (3.7)	*** (***)
Colorado	3 (0.6)	0 (0.0)	0 (0.3)	*** (***)	*** (***)	31 (1.5)	6 (2.8)	10 (1.3)	*** (***)	*** (***)
Connecticut	5 (0.8)	0 (0.2)	0 (0.3)	13 (5.5)	*** (***)	38 (1.3) >	5 (1.3)	6 (1.4)	48 (9.2)	*** (***)
Delaware	3 (0.6)	0 (0.1)	0 (0.0)	*** (***)	*** (***)	25 (1.5)	4 (1.2)	5 (2.8)	*** (***)	*** (***)
Dist. Columbia	*** (***)	0 (0.0)	0 (0.7)	*** (***)	*** (***)	*** (***)	4 (0.7)	7 (3.4)	*** (***)	*** (***)
Florida	3 (0.6)	0 (0.3)	0 (0.2)	*** (***)	*** (***)	26 (1.8) >	4 (0.9)	7 (1.4)	*** (***)	*** (***)
Georgia	2 (0.5)	0 (0.2)	0 (0.0)	*** (***)	*** (***)	23 (1.6)	4 (0.9)	5 (2.7)	*** (***)	*** (***)
Hawaii	2 (1.0)	*** (***)	1 (0.6)	2 (0.4)	*** (***)	22 (2.4)	*** (***)	5 (1.4)	18 (1.0)	*** (***)
Idaho	3 (0.4)	*** (***)	0 (0.2)	*** (***)	0 (0.8)	29 (1.2)	*** (***)	9 (2.2)	*** (***)	13 (4.8)
Indiana	3 (0.5)	0 (0.6)	2 (1.5)	*** (***)	*** (***)	27 (1.5)	5 (1.9)	11 (3.8)	*** (***)	*** (***)
Iowa	5 (0.7)	*** (***)	1 (0.6)	*** (***)	*** (***)	39 (1.4) >	*** (***)	15 (3.4)	*** (***)	*** (***)
Kentucky	2 (0.3)	0 (0.2)	0 (0.0)	*** (***)	*** (***)	18 (1.2)	5 (1.7)	5 (3.0)	*** (***)	*** (***)
Louisiana	1 (0.3)	0 (0.1)	0 (0.0)	*** (***)	*** (***)	16 (1.7)	2 (0.6)	2 (1.5)	*** (***)	*** (***)
Maine	4 (0.6)	*** (***)	*** (***)	*** (***)	1 (2.6)	32 (2.0)	*** (***)	*** (***)	*** (***)	11 (4.9)
Maryland	6 (0.9)	0 (0.1)	1 (0.6)	9 (3.4)	*** (***)	34 (1.8) >	4 (1.4)	6 (2.1)	47 (5.8)	*** (***)
Massachusetts	4 (0.6)	1 (0.4)	0 (0.2)	*** (***)	*** (***)	31 (1.6)	8 (2.7)	5 (1.8)	*** (***)	*** (***)
Michigan	3 (0.5)	0 (0.3)	1 (0.9)	*** (***)	*** (***)	29 (2.0)	2 (0.7)	11 (3.5)	*** (***)	*** (***)
Minnesota	6 (0.7)	*** (***)	0 (0.0)	*** (***)	*** (***)	39 (1.2) »	*** (***)	8 (2.8)	*** (***)	*** (***)
Mississippi	1 (0.3)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	16 (1.4)	1 (0.5)	1 (0.9)	*** (***)	*** (***)
Missouri	3 (0.4)	0 (0.6)	1 (1.8)	*** (***)	*** (***)	27 (1.4)	4 (1.3)	11 (3.6)	*** (***)	*** (***)
Nebraska	4 (0.6)	0 (0.4)	0 (0.6)	*** (***)	*** (***)	35 (2.0)	2 (1.3)	12 (3.4)	*** (***)	*** (***)
New Hampshire	3 (0.5)	*** (***)	1 (1.4)	*** (***)	*** (***)	31 (1.4) >	*** (***)	13 (5.6)	*** (***)	*** (***)
New Jersey	5 (0.9)	0 (0.3)	1 (0.6)	13 (3.2)	*** (***)	36 (2.0)	5 (1.4)	7 (1.9)	58 (6.0)	*** (***)
New Mexico	2 (0.6)	*** (***)	0 (0.1)	*** (***)	0 (0.0)	23 (1.8)	*** (***)	6 (0.8)	*** (***)	2 (1.7)
New York	5 (0.7)	0 (0.6)	1 (0.6)	12 (4.0)	*** (***)	32 (2.0)	4 (1.6)	8 (2.1)	36 (7.3)	*** (***)
North Carolina	2 (0.4)	0 (0.1)	0 (0.6)	*** (***)	*** (***)	20 (1.2)	4 (0.8)	7 (4.2)	*** (***)	*** (***)
North Dakota	4 (0.6)	*** (***)	*** (***)	*** (***)	0 (0.0)!	37 (1.7)	*** (***)	*** (***)	*** (***)	7 (5.4)!
Ohio	3 (0.6)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	26 (1.6) >	4 (1.0)	7 (2.6)	*** (***)	*** (***)
Oklahoma	2 (0.4)	0 (0.0)	1 (1.1)	*** (***)	1 (1.0)	24 (1.2)	3 (1.1)	11 (3.6)	*** (***)	16 (3.1)
Pennsylvania	4 (0.7)	0 (0.6)	0 (1.4)!	*** (***)	*** (***)	29 (1.4)	6 (4.1)	8 (3.9)!	*** (***)	*** (***)
Rhode Island	2 (0.3)	0 (0.0)	0 (0.2)	1 (2.4)	*** (***)	23 (1.5)	4 (3.3)	3 (1.4)	18 (5.2)	*** (***)
South Carolina	3 (0.8)	0 (0.1)	0 (0.0)	*** (***)	*** (***)	27 (1.7)	4 (0.9)	2 (1.2)	*** (***)	*** (***)
Tennessee	2 (0.5)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	18 (1.4)	3 (1.0)	2 (1.8)	*** (***)	*** (***)
Texas	5 (1.0)	0 (0.3)	1 (0.4)	24 (6.8)	*** (***)	32 (2.2)	7 (1.5)	8 (1.0)	61 (6.3)	*** (***)
Utah	3 (0.5)	*** (***)	1 (0.8)	*** (***)	*** (***)	29 (1.2)	*** (***)	9 (2.1)	*** (***)	*** (***)
Virginia	4 (0.8)	0 (0.4)	1 (1.0)	4 (2.4)	*** (***)	28 (1.4)	6 (1.3)	13 (4.1)	37 (5.9)	*** (***)
West Virginia	1 (0.2)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	13 (1.0)	5 (2.4)	2 (1.5)	*** (***)	*** (***)
Wisconsin	4 (0.7)	0 (0.2)	0 (0.0)	*** (***)	0 (0.0)!	36 (1.4)	10 (5.2)	6 (2.2)	*** (***)	12 (3.8)!
Wyoming	3 (0.5)	*** (***)	1 (0.7)	*** (***)	0 (0.0)!	28 (1.1)	*** (***)	11 (2.5)	*** (***)	2 (1.6)!
TERRITORIES										
Guam	2 (2.0)	*** (***)	0 (0.0)	1 (0.3)	*** (***)	23 (8.1)	*** (***)	4 (1.4)	7 (0.7)	*** (***)
Virgin Islands	*** (***)	0 (0.1)	0 (0.0)	*** (***)	*** (***)	*** (***)	1 (0.4)	0 (0.1)	*** (***)	*** (***)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

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TABLE 2.3 | **Achievement Levels by Race/Ethnicity (continued)**

PUBLIC SCHOOLS	Grade 8 - 1992									
	Percentage of Students At or Above Basic					Percentage of Students Below Basic				
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	White	Black	Hispanic	Asian / Pacific Islander	American Indian
NATION	73 (1.4)	26 (2.2)	37 (2.1)	78 (4.8)	46 (4.9)	27 (1.4)	74 (2.2)	63 (2.1)	22 (4.8)	54 (4.9)
Northeast	72 (3.9)	28 (5.3)	33 (5.5)!	*** (***)	*** (***)	28 (3.9)	72 (5.3)	67 (5.5)!	*** (***)	*** (***)
Southeast	66 (1.7)	23 (2.3)	29 (6.7)!	*** (***)	*** (***)	34 (1.7)	77 (2.3)	71 (6.7)!	*** (***)	*** (***)
Central	78 (2.5)	31 (5.6)	39 (8.9)	*** (***)	*** (***)	22 (2.5)	69 (5.6)	61 (8.9)	*** (***)	*** (***)
West	74 (3.4)	26 (5.6)	39 (2.4)	75 (8.3)	*** (***)	26 (3.4)	74 (5.6)	61 (2.4)	25 (8.3)	*** (***)
STATES										
Alabama	59 (2.1)	19 (2.1)	15 (4.6)	*** (***)	*** (***)	41 (2.1)	81 (2.1)	85 (4.6)	*** (***)	*** (***)
Arizona	74 (1.7)	42 (7.8)	40 (3.6)	*** (***)	47 (4.2)»	26 (1.7)	58 (7.8)	60 (3.6)	*** (***)	53 (4.2)«
Arkansas	61 (1.8)	18 (2.2)	23 (4.7)	*** (***)	*** (***)	39 (1.8)	82 (2.2)	77 (4.7)	*** (***)	*** (***)
California	73 (2.1)	26 (5.0)	34 (2.2)	69 (3.5)	*** (***)	27 (2.1)	74 (5.0)	66 (2.2)	31 (3.5)	*** (***)
Colorado	77 (1.2)	33 (5.8)	48 (2.6)	*** (***)	*** (***)	23 (1.2)	67 (5.8)	52 (2.6)	*** (***)	*** (***)
Connecticut	81 (1.2)>	32 (4.8)	32 (3.1)	78 (7.4)	*** (***)	19 (1.2)<	68 (4.8)	68 (3.1)	22 (7.4)	*** (***)
Delaware	69 (1.5)	31 (2.7)	33 (3.7)	*** (***)	*** (***)	31 (1.5)	69 (2.7)	67 (3.7)	*** (***)	*** (***)
Dist. Columbia	*** (***)	24 (1.4)>	22 (3.8)	*** (***)	*** (***)	*** (***)	76 (1.4)<	78 (3.8)	*** (***)	*** (***)
Florida	70 (1.8)>	27 (2.7)	40 (4.3)	*** (***)	*** (***)	30 (1.8)<	73 (2.7)	60 (4.3)	*** (***)	*** (***)
Georgia	69 (1.8)	29 (2.1)	27 (8.6)	*** (***)	*** (***)	31 (1.8)	71 (2.1)	73 (8.6)	*** (***)	*** (***)
Hawaii	62 (2.4)	*** (***)	34 (3.5)	53 (1.6)>	*** (***)	38 (2.4)	*** (***)	66 (3.5)	47 (1.6)<	*** (***)
Idaho	76 (1.1)	*** (***)	46 (4.5)	*** (***)	51 (6.8)	24 (1.1)	*** (***)	54 (4.5)	*** (***)	49 (6.8)
Indiana	70 (1.6)	34 (3.9)	46 (8.0)	*** (***)	*** (***)	30 (1.6)	66 (3.9)	54 (8.0)	*** (***)	*** (***)
Iowa	83 (1.3)>	*** (***)	53 (5.7)	*** (***)	*** (***)	17 (1.3)<	*** (***)	47 (5.7)	*** (***)	*** (***)
Kentucky	61 (1.3)>	30 (3.9)	26 (6.2)	*** (***)	*** (***)	39 (1.3)<	70 (3.9)	74 (6.2)	*** (***)	*** (***)
Louisiana	59 (2.3)	22 (2.2)	21 (3.8)	*** (***)	*** (***)	41 (2.3)	78 (2.2)	79 (3.8)	*** (***)	*** (***)
Maine	79 (1.2)	*** (***)	*** (***)	*** (***)	60 (8.0)	21 (1.2)	*** (***)	*** (***)	*** (***)	40 (8.0)
Maryland	74 (1.7)	30 (2.5)	33 (4.1)	80 (5.2)	*** (***)	26 (1.7)	70 (2.5)	67 (4.1)	20 (5.2)	*** (***)
Massachusetts	74 (1.6)	35 (5.3)	30 (4.5)	*** (***)	*** (***)	26 (1.6)	65 (5.3)	70 (4.5)	*** (***)	*** (***)
Michigan	75 (1.6)	22 (2.8)	44 (5.7)	*** (***)	*** (***)	25 (1.6)	78 (2.8)	56 (5.7)	*** (***)	*** (***)
Minnesota	81 (1.2)	*** (***)	48 (6.7)	*** (***)	*** (***)	19 (1.2)	*** (***)	52 (6.7)	*** (***)	*** (***)
Mississippi	59 (1.9)	19 (1.4)	12 (3.2)	*** (***)	*** (***)	41 (1.9)	81 (1.4)	88 (3.2)	*** (***)	*** (***)
Missouri	75 (1.4)	30 (3.1)	38 (6.4)	*** (***)	*** (***)	25 (1.4)	70 (3.1)	62 (6.4)	*** (***)	*** (***)
Nebraska	81 (1.2)	25 (8.1)	47 (5.9)	*** (***)	*** (***)	19 (1.2)	75 (8.1)	53 (5.9)	*** (***)	*** (***)
New Hampshire	78 (1.0)>	*** (***)	56 (7.1)	*** (***)	*** (***)	22 (1.0)<	*** (***)	44 (7.1)	*** (***)	*** (***)
New Jersey	82 (1.3)	32 (3.8)	41 (4.3)	89 (3.1)	*** (***)	18 (1.3)	68 (3.8)	59 (4.3)	11 (3.1)	*** (***)
New Mexico	72 (1.6)	*** (***)	40 (1.8)	*** (***)	41 (5.2)	28 (1.6)	*** (***)	60 (1.8)	*** (***)	59 (5.2)
New York	78 (1.4)	25 (5.2)	38 (4.9)	74 (7.5)	*** (***)	22 (1.4)	75 (5.2)	62 (4.9)	26 (7.5)	*** (***)
North Carolina	63 (1.6)	29 (2.8)	28 (6.1)	*** (***)	*** (***)	37 (1.6)	71 (2.8)	72 (6.1)	*** (***)	*** (***)
North Dakota	84 (1.3)	*** (***)	*** (***)	*** (***)	57(11.7)!	16 (1.3)	*** (***)	*** (***)	*** (***)	43(11.7)!
Ohio	72 (2.0)	24 (3.0)	38 (5.6)	*** (***)	*** (***)	28 (2.0)	76 (3.0)	62 (5.6)	*** (***)	*** (***)
Oklahoma	72 (2.2)	28 (5.2)	46 (5.4)	*** (***)	55 (4.9)	28 (2.2)	72 (5.2)	54 (5.4)	*** (***)	45 (4.9)
Pennsylvania	73 (1.4)	28 (5.0)	38 (5.6)!	*** (***)	*** (***)	27 (1.4)	72 (5.0)	62 (5.6)!	*** (***)	*** (***)
Rhode Island	69 (1.4)»	32 (4.9)	22 (4.3)	64 (6.2)	*** (***)	31 (1.4)«	68 (4.9)	78 (4.3)	36 (6.2)	*** (***)
South Carolina	70 (1.2)	30 (1.6)	21 (4.0)	*** (***)	*** (***)	30 (1.2)	70 (1.6)	79 (4.0)	*** (***)	*** (***)
Tennessee	62 (1.5)	21 (3.1)	23 (5.8)	*** (***)	*** (***)	38 (1.5)	79 (3.1)	77 (5.8)	*** (***)	*** (***)
Texas	76 (1.8)	33 (3.0)	40 (1.9)	87 (4.0)	*** (***)	24 (1.8)	67 (3.0)	60 (1.9)	13 (4.0)	*** (***)
Utah	75 (1.3)	*** (***)	47 (3.9)	*** (***)	*** (***)	25 (1.3)	*** (***)	53 (3.9)	*** (***)	*** (***)
Virginia	71 (1.6)	35 (3.3)	50 (4.4)	76 (4.6)	*** (***)	29 (1.6)	65 (3.3)	50 (4.4)	24 (4.6)	*** (***)
West Virginia	55 (1.5)	31 (6.5)	19 (6.3)	*** (***)	*** (***)	45 (1.5)	69 (6.5)	81 (6.3)	*** (***)	*** (***)
Wisconsin	81 (1.5)	38 (9.2)	43 (6.7)	*** (***)	62(11.8)!	19 (1.5)	62 (9.2)	57 (6.7)	*** (***)	38(11.8)!
Wyoming	77 (1.1)	*** (***)	53 (4.1)	*** (***)	39 (5.3)!	23 (1.1)	*** (***)	47 (4.1)	*** (***)	61 (5.3)!
TERRITORIES										
Guam	64 (6.1)	*** (***)	18 (2.9)>	30 (1.5)	*** (***)	36 (6.1)	*** (***)	82 (2.9)<	70 (1.5)	*** (***)
Virgin Islands	*** (***)	14 (1.5)	6 (1.7)	*** (***)	*** (***)	*** (***)	86 (1.5)	94 (1.7)	*** (***)	*** (***)

TABLE 2.3 | Achievement Levels by Race/Ethnicity (continued)

PUBLIC SCHOOLS	Grade 8 - 1990									
	Percentage of Students At or Above Advanced					Percentage of Students At or Above Proficient				
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	White	Black	Hispanic	Asian / Pacific Islander	American Indian
NATION	3 (0.6)	0 (0.3)	0 (0.2)	6 (2.7)!	0 (0.0)!	24 (1.6)	6 (1.3)	6 (1.6)	39 (6.3)!	8 (8.2)!
Northeast	4 (1.2)	0 (1.1)!	*** (***)	*** (***)	*** (***)	28 (2.9)	10 (6.6)!	*** (***)	*** (***)	*** (***)
Southeast	2 (0.9)	0 (0.3)	*** (***)	*** (***)	*** (***)	20 (3.6)	5 (1.7)	*** (***)	*** (***)	*** (***)
Central	2 (0.8)	0 (0.0)!	*** (***)	*** (***)	*** (***)	24 (2.3)	2 (1.8)!	*** (***)	*** (***)	*** (***)
West	4 (1.0)	0 (0.0)!	1 (0.3)	*** (***)	*** (***)	23 (3.5)	13 (4.7)!	7 (2.1)	*** (***)	*** (***)
STATES										
Alabama	2 (0.3)	0 (0.2)	1 (0.0)	*** (***)	*** (***)	16 (1.1)	3 (0.7)	4 (1.8)	*** (***)	*** (***)
Arizona	2 (0.6)	0 (0.0)	0 (0.3)	*** (***)	0 (0.0)!	23 (1.5)	6 (3.2)	5 (1.0)	*** (***)	1 (1.0)!
Arkansas	1 (0.3)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	16 (1.2)	1 (0.6)	4 (2.8)	*** (***)	*** (***)
California	3 (0.6)	0 (0.0)	0 (0.1)	4 (1.3)	*** (***)	24 (2.1)	3 (1.8)	4 (0.9)	27 (3.3)	*** (***)
Colorado	3 (0.6)	0 (0.0)!	0 (0.2)	*** (***)	*** (***)	27 (1.4)	2 (1.7)!	6 (1.5)	*** (***)	*** (***)
Connecticut	5 (0.5)	0 (0.2)	1 (0.4)	*** (***)	*** (***)	31 (1.3)	5 (2.0)	5 (2.2)	*** (***)	*** (***)
Delaware	3 (0.7)	0 (0.2)	0 (0.4)	*** (***)	*** (***)	24 (1.2)	6 (1.2)	8 (3.5)	*** (***)	*** (***)
Dist. Columbia	*** (***)	0 (0.1)	0 (0.3)	*** (***)	*** (***)	*** (***)	2 (0.5)	2 (1.2)	*** (***)	*** (***)
Florida	2 (0.5)	0 (0.1)	1 (0.5)	3 (4.7)	*** (***)	19 (1.5)	3 (0.9)	10 (1.5)	32 (6.9)	*** (***)
Georgia	4 (0.8)	0 (0.2)	0 (0.6)	*** (***)	*** (***)	25 (1.8)	5 (0.8)	5 (2.2)	*** (***)	*** (***)
Hawaii	2 (0.9)	*** (***)	0 (0.4)	2 (0.4)	*** (***)	20 (2.7)	*** (***)	5 (1.6)	15 (0.9)	*** (***)
Idaho	2 (0.4)	*** (***)	0 (0.9)	*** (***)	0 (0.4)	25 (1.6)	*** (***)	7 (2.7)	*** (***)	8 (4.9)
Indiana	3 (0.7)	1 (0.5)	1 (1.2)	*** (***)	*** (***)	23 (1.2)	3 (1.4)	10 (2.8)	*** (***)	*** (***)
Iowa	4 (0.5)	*** (***)	1 (0.9)	*** (***)	*** (***)	32 (1.7)	*** (***)	11 (3.6)	*** (***)	*** (***)
Kentucky	1 (0.3)	0 (0.2)	0 (0.0)	*** (***)	*** (***)	15 (1.1)	3 (1.5)	1 (1.2)	*** (***)	*** (***)
Louisiana	1 (0.3)	0 (0.1)	0 (0.0)	*** (***)	*** (***)	12 (1.6)	2 (0.5)	3 (1.6)	*** (***)	*** (***)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	4 (0.8)	0 (0.2)	1 (0.8)	9 (2.9)	*** (***)	27 (1.6)	5 (1.1)	8 (1.8)	51 (6.1)	*** (***)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	3 (0.5)	0 (0.0)	1 (0.7)	*** (***)	*** (***)	24 (1.5)	1 (0.9)	6 (2.7)	*** (***)	*** (***)
Minnesota	4 (0.5)	1 (1.0)!	0 (0.0)	8 (4.2)	*** (***)	30 (1.3)	10 (3.4)!	6 (2.6)	23 (5.4)	*** (***)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	4 (0.7)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	33 (1.5)	4 (3.4)	6 (2.9)	*** (***)	*** (***)
New Hampshire	3 (0.5)	*** (***)	0 (0.0)	*** (***)	*** (***)	26 (1.2)	*** (***)	11 (4.6)	*** (***)	*** (***)
New Jersey	5 (0.7)	0 (0.4)	1 (0.9)	13 (3.4)	*** (***)	31 (1.9)	6 (1.4)	7 (1.7)	56 (6.4)	*** (***)
New Mexico	3 (0.7)	*** (***)	0 (0.2)	*** (***)	0 (0.3)	23 (2.0)	*** (***)	5 (0.8)	*** (***)	3 (1.0)
New York	4 (0.6)	0 (0.2)	1 (0.5)	10 (3.5)!	*** (***)	26 (1.5)	4 (1.1)	6 (1.9)	38 (7.2)!	*** (***)
North Carolina	1 (0.5)	0 (0.1)	0 (0.4)	*** (***)	0 (0.5)!	16 (1.2)	3 (0.9)	1 (1.0)	*** (***)	3 (2.1)
North Dakota	4 (0.7)	*** (***)	2 (4.7)	*** (***)	0 (0.0)!	36 (2.0)	*** (***)	8 (4.5)	*** (***)	4 (2.6)!
Ohio	2 (0.4)	0 (0.2)	0 (0.0)	*** (***)	*** (***)	21 (1.2)	2 (1.2)	6 (3.0)	*** (***)	*** (***)
Oklahoma	2 (0.6)	0 (0.0)	0 (0.7)	*** (***)	1 (0.5)	20 (1.5)	2 (1.1)	6 (2.5)	*** (***)	8 (2.3)
Pennsylvania	2 (0.4)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	25 (1.3)	3 (2.5)	4 (2.0)	*** (***)	*** (***)
Rhode Island	2 (0.4)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	21 (1.2)	2 (1.4)	2 (0.9)	*** (***)	*** (***)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	3 (0.7)	0 (0.2)	0 (0.3)	*** (***)	*** (***)	26 (1.8)	3 (1.0)	6 (0.9)	*** (***)	*** (***)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	5 (0.9)	0 (0.3)	1 (1.0)	18 (4.3)	*** (***)	25 (2.0)	5 (1.1)	10 (3.7)	48 (4.9)	*** (***)
West Virginia	1 (0.2)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	13 (0.9)	4 (3.3)	5 (2.7)	*** (***)	*** (***)
Wisconsin	4 (0.5)	0 (0.0)	1 (0.8)	*** (***)	*** (***)	32 (1.6)	4 (2.1)	8 (2.7)	*** (***)	*** (***)
Wyoming	2 (0.4)	*** (***)	0 (0.2)	*** (***)	0 (0.3)	26 (1.1)	*** (***)	10 (2.7)	*** (***)	7 (2.5)
TERRITORIES										
Guam	1 (1.5)	*** (***)	0 (0.0)	1 (0.3)	*** (***)	13 (3.2)	*** (***)	1 (0.8)	6 (0.7)	*** (***)
Virgin Islands	*** (***)	0 (0.1)	0 (0.0)	*** (***)	*** (***)	*** (***)	1 (0.5)	0 (0.3)	*** (***)	*** (***)

(xxx) Did not participate in the 1990 Trial State Assessment.

TABLE 2.3 | Achievement Levels by Race/Ethnicity (continued)

PUBLIC SCHOOLS	Grade 8 - 1990									
	Percentage of Students At or Above Basic					Percentage of Students Below Basic				
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	White	Black	Hispanic	Asian / Pacific Islander	American Indian
NATION	67 (1.6)	27 (3.1)	36 (3.1)	76 (5.9)!	37(10.4)!	33 (1.6)	73 (3.1)	64 (3.1)	24 (5.9)!	63(10.4)!
Northeast	71 (2.9)	36 (7.5)!	*** (***)	*** (***)	*** (***)	29 (2.9)	64 (7.5)!	*** (***)	*** (***)	*** (***)
Southeast	61 (3.7)	25 (4.7)	*** (***)	*** (***)	*** (***)	39 (3.7)	75 (4.7)	*** (***)	*** (***)	*** (***)
Central	69 (2.8)	20 (6.5)!	*** (***)	*** (***)	*** (***)	31 (2.8)	80 (6.5)!	*** (***)	*** (***)	*** (***)
West	66 (3.2)	37 (9.9)!	37 (3.4)	*** (***)	*** (***)	34 (3.2)	63 (9.9)!	63 (3.4)	*** (***)	*** (***)
STATES										
Alabama	59 (1.6)	23 (2.3)	20 (4.4)	*** (***)	*** (***)	41 (1.6)	77 (2.3)	80 (4.4)	*** (***)	*** (***)
Arizona	69 (1.6)	35 (5.3)	34 (2.4)	*** (***)	23 (3.3)!	31 (1.6)	65 (5.3)	66 (2.4)	*** (***)	77 (3.3)!
Arkansas	63 (1.6)	19 (1.1)	21 (6.3)	*** (***)	*** (***)	37 (1.6)	81 (1.1)	79 (6.3)	*** (***)	*** (***)
California	68 (1.9)	23 (3.1)	30 (2.2)	64 (4.5)	*** (***)	32 (1.9)	77 (3.1)	70 (2.2)	36 (4.5)	*** (***)
Colorado	73 (1.2)	28 (6.8)!	40 (2.4)	*** (***)	*** (***)	27 (1.2)	72 (6.8)!	60 (2.4)	*** (***)	*** (***)
Connecticut	75 (1.2)	33 (3.6)	30 (3.3)	*** (***)	*** (***)	25 (1.2)	67 (3.6)	70 (3.3)	*** (***)	*** (***)
Delaware	63 (2.0)	34 (2.2)	35 (6.7)	*** (***)	*** (***)	37 (2.0)	66 (2.2)	65 (6.7)	*** (***)	*** (***)
Dist. Columbia	*** (***)	19 (1.0)	14 (2.3)	*** (***)	*** (***)	*** (***)	81 (1.0)	86 (2.3)	*** (***)	*** (***)
Florida	61 (1.9)	22 (2.0)	37 (3.1)	67 (6.6)	*** (***)	39 (1.9)	78 (2.0)	63 (3.1)	33 (6.6)	*** (***)
Georgia	68 (1.6)	30 (2.0)	26 (3.7)	*** (***)	*** (***)	32 (1.6)	70 (2.0)	74 (3.7)	*** (***)	*** (***)
Hawaii	58 (2.6)	*** (***)	23 (3.5)	46 (1.2)	*** (***)	42 (2.6)	*** (***)	77 (3.5)	54 (1.2)	*** (***)
Idaho	73 (1.3)	*** (***)	42 (4.9)	*** (***)	45 (8.0)	27 (1.3)	*** (***)	58 (4.9)	*** (***)	55 (8.0)
Indiana	68 (1.5)	31 (4.5)	33 (4.7)	*** (***)	*** (***)	32 (1.5)	69 (4.5)	67 (4.7)	*** (***)	*** (***)
Iowa	78 (1.1)	*** (***)	48 (5.7)	*** (***)	*** (***)	22 (1.1)	*** (***)	52 (5.7)	*** (***)	*** (***)
Kentucky	54 (2.0)	31 (3.5)	18 (4.6)	*** (***)	*** (***)	46 (2.0)	69 (3.5)	82 (4.6)	*** (***)	*** (***)
Louisiana	54 (2.0)	18 (1.9)	19 (4.1)	*** (***)	*** (***)	46 (2.0)	82 (1.9)	81 (4.1)	*** (***)	*** (***)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	70 (1.9)	29 (2.6)	30 (3.4)	85 (3.8)	*** (***)	30 (1.9)	71 (2.6)	70 (3.4)	15 (3.8)	*** (***)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	69 (1.4)	18 (1.8)	35 (4.2)	*** (***)	*** (***)	31 (1.4)	82 (1.8)	65 (4.2)	*** (***)	*** (***)
Minnesota	77 (1.2)	30 (6.0)!	33 (7.4)	67 (6.1)	*** (***)	23 (1.2)	70 (6.0)!	67 (7.4)	33 (6.1)	*** (***)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	79 (1.2)	25 (5.2)	49 (6.8)	*** (***)	*** (***)	21 (1.2)	75 (5.2)	51 (6.8)	*** (***)	*** (***)
New Hampshire	72 (1.6)	*** (***)	48 (7.4)	*** (***)	*** (***)	28 (1.6)	*** (***)	52 (7.4)	*** (***)	*** (***)
New Jersey	77 (1.7)	31 (2.6)	33 (2.7)	86 (4.7)	*** (***)	23 (1.7)	69 (2.6)	67 (2.7)	14 (4.7)	*** (***)
New Mexico	72 (1.7)	*** (***)	38 (1.8)	*** (***)	26 (2.8)	28 (1.7)	*** (***)	62 (1.8)	*** (***)	74 (2.8)
New York	72 (1.3)	26 (4.1)	30 (4.3)	73 (6.4)!	*** (***)	28 (1.3)	74 (4.1)	70 (4.3)	27 (6.4)!	*** (***)
North Carolina	58 (1.9)	23 (1.9)	12 (3.9)	*** (***)	25 (6.6)!	42 (1.9)	77 (1.9)	88 (3.9)	*** (***)	75 (6.6)!
North Dakota	85 (1.3)	*** (***)	42 (7.5)	*** (***)	31 (4.2)!	15 (1.3)	*** (***)	58 (7.5)	*** (***)	69 (4.2)!
Ohio	66 (1.4)	22 (3.2)	28 (7.2)	*** (***)	*** (***)	34 (1.4)	78 (3.2)	72 (7.2)	*** (***)	*** (***)
Oklahoma	66 (1.8)	25 (3.0)	40 (5.8)	*** (***)	52 (3.7)	34 (1.8)	75 (3.0)	60 (5.8)	*** (***)	48 (3.7)
Pennsylvania	70 (1.3)	29 (4.6)	20 (4.3)	*** (***)	*** (***)	30 (1.3)	71 (4.6)	80 (4.3)	*** (***)	*** (***)
Rhode Island	61 (1.0)	20 (4.2)	21 (3.7)	*** (***)	*** (***)	39 (1.0)	80 (4.2)	79 (3.7)	*** (***)	*** (***)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	71 (1.7)	23 (2.6)	36 (2.1)	*** (***)	*** (***)	29 (1.7)	77 (2.6)	64 (2.1)	*** (***)	*** (***)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	67 (1.7)	32 (2.5)	34 (5.0)	89 (3.8)	*** (***)	33 (1.7)	68 (2.5)	66 (5.0)	11 (3.8)	*** (***)
West Virginia	51 (1.2)	23 (6.1)	24 (5.3)	*** (***)	*** (***)	49 (1.2)	77 (6.1)	76 (5.3)	*** (***)	*** (***)
Wisconsin	79 (1.5)	24 (6.1)	42 (5.7)	*** (***)	*** (***)	21 (1.5)	76 (6.1)	58 (5.7)	*** (***)	*** (***)
Wyoming	74 (1.3)	*** (***)	50 (3.5)	*** (***)	54 (6.5)	26 (1.3)	*** (***)	50 (3.5)	*** (***)	46 (6.5)
TERRITORIES										
Guam	57 (5.9)	*** (***)	9 (1.4)	29 (1.1)	*** (***)	43 (5.9)	*** (***)	91 (1.4)	71 (1.1)	*** (***)
Virgin Islands	*** (***)	11 (1.3)	6 (1.5)	*** (***)	*** (***)	*** (***)	89 (1.3)	94 (1.5)	*** (***)	*** (***)

(xxx) Did not participate in the 1990 Trial State Assessment.

In general, across participating jurisdictions, about 13 to 33 percent of the White fourth graders were estimated to be at or above the Proficient level. The District of Columbia was the exception, with approximately one-half (52 percent) of its small percentage of White students reaching this level. Across all jurisdictions, it was estimated that the achievement of 5 percent or fewer Black students and 15 percent or fewer Hispanic students reached the Proficient level. The percentages of Asian/Pacific Islander students reaching this level were estimated to be between 16 and 40 percent in California, Colorado, Hawaii, Maryland, Massachusetts, New Jersey, New York, Texas, and Virginia. Rhode Island and Guam had 1 and 5 percent, respectively, of their Asian/Pacific Islander students attaining the Proficient level. For American Indian students in those states with large enough samples to report results, from 3 to 12 percent were estimated to have reached the Proficient level.

It is estimated that New Jersey was the only participating jurisdiction to have fewer than one-fifth (17 percent) of the White fourth graders perform below the Basic level. Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Tennessee, West Virginia, and Guam had approximately 40 percent or more of their White fourth graders performing below the Basic level. For Black fourth graders, from about three-fifths to more than four-fifths were below the Basic level in all jurisdictions. For most jurisdictions, the percentages of Hispanic students estimated to be below the Basic level of performance ranged from more than one-third to almost four-fifths. The pattern for Asian/Pacific Islander students was mixed, with two states, Virginia (16 percent) and New Jersey (17 percent), estimated to have relatively low percentages of fourth graders performing below the Basic level. However, in other jurisdictions, including Guam (71 percent) and Rhode Island (74 percent), very high proportions of Asian/Pacific Islander students were estimated to have performed below the Basic level. In general, except for Arizona with an estimated high of 73 percent, about one-half of the American Indian fourth graders performed below the Basic level.

In 1992, it was estimated that 6 percent or fewer of the White eighth graders across all 44 participating jurisdictions were at or above the Advanced level. Only in Massachusetts were as many as 1 percent of the Black eighth graders estimated to be at the Advanced level. Approximately 1 to 2 percent of the Hispanic eighth graders in Arkansas, Hawaii, Indiana, Iowa, Maryland, Michigan, Missouri, New Hampshire, New Jersey, New York, Oklahoma, Texas, Utah, Virginia, and Wyoming reached this highest level. It was estimated that from 1 percent in Rhode Island to 24 percent in Texas of the Asian/Pacific

Islander eighth graders attained the Advanced level as did about 1 percent of the American Indian students in Maine and Oklahoma.

In 1992, the percentages of White eighth graders estimated to be at or above the Proficient level ranged from a low of 13 percent in West Virginia to a high of 39 percent in Minnesota and Iowa. Approximately 10 percent or fewer Black students and 15 percent or fewer Hispanic students performed this well. Except for Hawaii and Rhode Island (both 18 percent) and Guam (7 percent), from about one-third to two-thirds of the Asian/Pacific Islander students achieved the Proficient level or beyond. Sixteen percent or fewer of the American Indian students in any jurisdiction were estimated to have reached this level.

From approximately one-fifth to more than one-third of the White students did not reach the Basic level. In Alabama, Louisiana, Mississippi, and West Virginia, more than 40 percent of the White students were estimated to have performed below the Basic level. Across participating jurisdictions, from about three-fifths to more than four-fifths of the Black eighth graders did not reach the Basic level. For Hispanic eighth graders, the proportion of students estimated to be below Basic in 1992 ranged from about one-half to more than four-fifths. Approximately one-third to two-thirds of the Asian/Pacific Islander eighth graders in Hawaii, Rhode Island and Guam performed below the Basic level. In general, from more than one-third to almost two-thirds of the American Indian students were estimated to perform below the Basic level.

There were no significant changes in the percentages of eighth graders reaching the Advanced level for any racial/ethnic group between 1990 and 1992 in any jurisdiction. Between 1990 and 1992, the percentages of White students in grade 8 reaching the Proficient level increased significantly in Connecticut, Florida, Iowa, Maryland, Minnesota, New Hampshire, and Ohio. There were no significant changes for other racial/ethnic groups at this achievement level. The percentage of White students below Basic decreased significantly in Connecticut, Florida, Iowa, Kentucky, New Hampshire, and Rhode Island. Decreases in the group performing below Basic were also found among Black students in the District of Columbia, Hispanic students in Guam, Asian/Pacific Islander students in Hawaii, and American Indian students in Arizona.

National Performance by Gender

The national data for average mathematics proficiency and achievement levels for male and female students in grades 4, 8, and 12 for 1990 and 1992 are presented in TABLE 2.4. In 1992, male students had higher average proficiency than female students at grade 12, but there was no significant difference at grades 4 and 8. Between 1990 and 1992, there was a significant increase in the mathematics performance of both male and female students at all three grades.

TABLE 2.4 Average Mathematics Proficiency and Achievement Levels by Gender, Grades 4, 8, and 12

				Percentage of Students At or Above			
	Assessment Years	Percentage of Students	Average Proficiency	Advanced	Proficient	Basic	Percentage Below Basic
Grade 4							
Male	1992	50(0.6)	220(0.8)>	3(0.5)	20(1.1)>	62(1.1)>	38(1.1)<
	1990	52(1.0)	214(1.2)	2(0.6)	14(1.3)	55(1.7)	45(1.7)
Female	1992	50(0.6)	217(1.0)>	2(0.3)	17(1.3)	59(1.5)>	41(1.5)<
	1990	48(1.0)	212(1.1)	1(0.4)	13(1.4)	53(2.0)	47(2.0)
Grade 8							
Male	1992	51(0.6)	267(1.1)>	4(0.6)	25(1.3)	62(1.3)	38(1.3)
	1990	51(1.0)	263(1.6)	3(0.5)	21(1.5)	58(1.8)	42(1.8)
Female	1992	49(0.6)	268(1.0)>	4(0.5)>	24(1.3)>	63(1.2)	37(1.2)
	1990	49(1.0)	262(1.3)	2(0.4)	18(1.2)	59(1.6)	41(1.6)
Grade 12							
Male	1992	49(0.8)	301(1.1)>	3(0.5)	18(1.1)	65(1.3)	35(1.3)
	1990	48(1.0)	297(1.4)	3(0.6)	16(1.5)	61(1.7)	39(1.7)
Female	1992	51(0.8)	297(1.0)>	1(0.3)	14(1.1)	63(1.4)	37(1.4)
	1990	52(1.0)	292(1.3)	1(0.3)	10(0.9)	57(1.9)	43(1.9)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details).

In 1992, 4 percent or fewer of either male or female students were estimated to reached the Advanced achievement level in all three grades. Although the percentages are small (3 percent compared to 1 percent), significantly more males than females reached the Advanced level in twelfth grade.

About the same percentages of males and females were estimated to have reached the Proficient level at grades 4 and 8 -- about one-fifth and one-fourth, respectively. At grade 12, however, significantly more males than females reached this level (18 percent compared to 14 percent). Essentially the same proportion of males and females (60 percent or so) reached the Basic level at all three grades.

Between 1992 and 1990, fourth-grade males showed gains at both the Proficient and Basic levels. Increased percentages of females were estimated to have performed at or above the Basic level at grade 4, and at or above both the Proficient and Advanced levels at grade 8.

National Performance by Race/Ethnicity and Gender

TABLE 2.5 presents national average mathematics proficiency and achievement levels by race/ethnicity and gender for grades 4, 8, and 12 for 1992 and 1990. The general pattern at all three grades is one in which White male and female students have higher average proficiencies than do their Hispanic and Black counterparts.

Hispanic male and female students had higher average proficiencies in mathematics than did Black male and female students in grades 4 and 8. At twelfth grade, there was no significant difference between the performance of Hispanic and Black male students, but Hispanic female students performed better, on average, than did Black female students. Also, White males had higher average proficiency than did White females. Gains in average performance were made by White male and female students at all three grades and by Black and Hispanic female students in twelfth grade.

In 1992, it is estimated that very few students in any category at any grade reached the Advanced level -- 4 percent or fewer White male and female students, virtually no Black male or female students or Hispanic male students, and only 1 percent of the Hispanic female students at eighth and twelfth grades. Significantly more White male students than female students were estimated to have reached the Proficient level at grade 12 (22 percent compared to 16 percent).

An estimated 9 percent or fewer of the Black and Hispanic male and female students achieved at or above the Proficient level at any grade.

In 1992, 70 percent or more of the White male and female students at all three grades were estimated to be above the Basic level of performance. For Black male and female students, about one-fourth of those in fourth and eighth grade and about one-third of those in twelfth grade were at or above the Basic level. More than one-third to almost one-half of the Hispanic male and female students achieved at or above this level.

TABLE 2.5 Average Mathematics Proficiency and Achievement Levels by Race/Ethnicity and Gender, Grades 4, 8, and 12

				Percentage of Students At or Above			
	Assessment Years	Percentage of Students	Average Proficiency	Advanced	Proficient	Basic	Percentage Below Basic
Grade 4							
White							
Male	1992	50(0.7)	228(1.0)>	3(0.6)	25(1.5)>	74(1.3)>	26(1.3)<
	1990	52(1.1)	221(1.4)	3(0.8)	18(1.8)	65(2.3)	35(2.3)
Female	1992	50(0.7)	225(1.3)>	2(0.4)	21(1.8)	70(1.9)>	30(1.9)<
	1990	48(1.1)	220(1.3)	1(0.5)	16(1.8)	63(2.3)	37(2.3)
Black							
Male	1992	48(1.5)	192(1.6)	0(0.0)	4(1.0)	26(2.7)	74(2.7)
	1990	50(1.9)	189(2.1)	0(0.0)	1(0.7)	22(3.5)	78(3.5)
Female	1992	52(1.5)	191(1.6)	0(0.0)	2(0.8)	23(2.3)	77(2.3)
	1990	50(1.9)	190(2.5)	0(0.3)	2(1.0)	22(3.2)	78(3.2)
Hispanic							
Male	1992	53(1.8)	200(1.6)	0(0.2)	5(1.6)	38(3.0)	62(3.0)
	1990	56(2.7)	198(3.1)	0(0.4)	6(1.6)	37(4.1)	63(4.1)
Female	1992	47(1.8)	201(1.7)	0(0.4)	6(1.3)	36(2.5)	64(2.5)
	1990	44(2.7)	198(2.3)	0(0.0)	4(1.9)	32(3.8)	68(3.8)
Grade 8							
White							
Male	1992	51(0.7)	277(1.2)>	4(0.7)	32(1.5)>	74(1.5)>	26(1.5)<
	1990	50(1.3)	271(1.9)	4(0.6)	26(2.0)	67(2.0)	33(2.0)
Female	1992	49(0.7)	277(1.1)>	4(0.8)	31(1.6)>	74(1.4)>	26(1.4)<
	1990	50(1.3)	269(1.3)	2(0.6)	21(1.5)	68(1.8)	32(1.8)
Black							
Male	1992	52(1.7)	237(1.9)	0(0.7)	4(1.3)	27(2.9)	73(2.9)
	1990	46(2.2)	238(3.2)	0(0.5)	6(1.9)	28(3.9)	72(3.9)
Female	1992	48(1.7)	237(1.5)	0(0.0)	3(0.8)	27(2.4)	73(2.4)
	1990	54(2.2)	238(3.3)	0(0.2)	7(1.6)	28(4.3)	72(4.3)
Hispanic							
Male	1992	52(1.8)	246(1.7)	0(0.4)	9(1.4)	39(2.7)	61(2.7)
	1990	57(2.4)	245(2.6)	1(0.0)	7(2.2)	39(3.4)	61(3.4)
Female	1992	48(1.8)	247(1.9)	1(0.8)	8(1.3)	39(2.8)	61(2.8)
	1990	43(2.4)	242(3.4)	0(0.0)	6(2.1)	36(4.3)	64(4.3)
Grade 12							
White							
Male	1992	50(0.9)	307(1.0)>	3(0.6)	22(1.3)	73(1.4)	27(1.4)
	1990	48(1.1)	303(1.5)	3(0.7)	19(1.9)	68(1.8)	32(1.8)
Female	1992	50(0.9)	303(1.0)>	2(0.4)	16(1.3)	70(1.5)	30(1.5)
	1990	52(1.1)	298(1.4)	1(0.3)	13(1.2)	65(2.2)	35(2.2)
Black							
Male	1992	46(2.2)	277(2.3)	0(0.5)	4(1.0)	36(3.6)	64(3.6)
	1990	47(3.1)	272(2.4)	0(0.0)	4(2.0)	30(3.6)	70(3.6)
Female	1992	54(2.2)	273(1.8)>	0(0.0)	2(0.8)	33(2.8)	67(2.8)
	1990	53(3.1)	264(2.5)	0(0.0)	1(0.4)	26(3.3)	74(3.3)
Hispanic							
Male	1992	50(2.5)	281(3.4)	0(0.2)	6(1.2)	43(3.8)	57(3.8)
	1990	48(3.7)	280(3.2)	1(0.7)	6(2.2)	43(5.7)	57(5.7)
Female	1992	50(2.5)	285(2.5)>	1(0.7)	6(1.5)	47(3.7)>	53(3.7)<
	1990	52(3.7)	272(3.7)	0(0.0)	3(1.0)	32(5.1)	68(5.1)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent confidence for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for detail). When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 percent or less were rounded to 0 percent.

Gains in the percentages reaching the Advanced level between 1990 and 1992 were evident only among White eighth-grade female students, and the difference was not statistically significant. At the Proficient level, gains were made by White males at grades 4 and 8 and White females at the eighth grade; the apparent gain by Black males at grade 4 was not statistically significant. For those performing at or above the Basic level, gains were made by White male and female students at both grades 4 and 8 and by Hispanic females at grade 12.

Performance by Gender for the States

TABLE 2.6 displays the average mathematics proficiency for male and female fourth- and eighth-grade students in 1992 and eighth-grade students in 1990 for those states and territories that participated in the Trial State Assessments. In 1992, in most states and territories the average performance for males and females was about the same.

Gains in average mathematics proficiency between 1990 and 1992 were made by male eighth graders in Colorado, Hawaii, Idaho, Minnesota, New Hampshire, North Carolina, Rhode Island, and Texas. Eighth-grade female students made gains in Arizona, California, Colorado, Florida, Hawaii, Iowa, Kentucky, Minnesota, New Mexico, North Carolina, Oklahoma, Rhode Island, Texas, Wyoming, Guam, and the Virgin Islands.

The achievement levels by gender for the states participating in the Trial State Assessment Program in 1990 and 1992 are presented in TABLE 2.7. In 1992, in most states and territories, males and females reached the three achievement levels in about the same proportions at both grades 4 and 8.

TABLE 2.6 | Average Mathematics Proficiency by Gender

PUBLIC SCHOOLS	Grade 4 - 1992			
	Male		Female	
	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency
NATION	50 (0.7)	218 (0.9)	50 (0.7)	216 (1.1)
Northeast	50 (1.2)	225 (2.3)	50 (1.2)	220 (2.9)
Southeast	49 (1.3)	209 (1.6)	51 (1.3)	209 (2.7)
Central	50 (1.3)	224 (2.6)	50 (1.3)	220 (2.5)
West	52 (1.5)	217 (1.7)	48 (1.5)	217 (1.9)
STATES				
Alabama	51 (1.0)	207 (1.8)	49 (1.0)	207 (1.7)
Arizona	51 (1.1)	213 (1.3)	49 (1.1)	214 (1.2)
Arkansas	53 (1.0)	209 (1.1)	47 (1.0)	208 (1.1)
California	52 (1.0)	208 (1.9)	48 (1.0)	207 (1.7)
Colorado	50 (1.0)	221 (1.2)	50 (1.0)	219 (1.2)
Connecticut	49 (1.1)	227 (1.3)	51 (1.1)	224 (1.3)
Delaware	51 (1.2)	218 (1.3)	49 (1.2)	215 (1.2)
Dist. Columbia	48 (0.9)	192 (1.0)	52 (0.9)	191 (0.9)
Florida	48 (1.0)	214 (1.8)	52 (1.0)	211 (1.7)
Georgia	51 (1.0)	214 (1.7)	49 (1.0)	215 (1.3)
Hawaii	49 (1.0)	211 (1.7)	51 (1.0)	214 (1.2)
Idaho	49 (0.8)	222 (1.2)	51 (0.8)	219 (1.1)
Indiana	50 (1.0)	221 (1.4)	50 (1.0)	218 (1.1)
Iowa	51 (0.9)	229 (1.2)	49 (0.9)	228 (1.3)
Kentucky	49 (0.9)	214 (1.3)	51 (0.9)	214 (1.1)
Louisiana	52 (1.0)	203 (1.7)	48 (1.0)	202 (1.5)
Maine	49 (1.1)	231 (1.3)	51 (1.1)	230 (1.3)
Maryland	50 (1.1)	218 (1.5)	50 (1.1)	214 (1.6)
Massachusetts	51 (1.0)	227 (1.4)	49 (1.0)	224 (1.4)
Michigan	52 (1.0)	221 (1.9)	48 (1.0)	216 (2.0)
Minnesota	50 (0.9)	228 (1.1)	50 (0.9)	227 (1.2)
Mississippi	52 (0.7)	199 (1.3)	48 (0.7)	201 (1.3)
Missouri	52 (0.9)	221 (1.5)	48 (0.9)	221 (1.3)
Nebraska	51 (0.9)	226 (1.4)	49 (0.9)	223 (1.6)
New Hampshire	50 (1.1)	229 (1.5)	50 (1.1)	228 (1.3)
New Jersey	51 (1.0)	227 (1.7)	49 (1.0)	225 (1.6)
New Mexico	47 (1.0)	212 (1.7)	53 (1.0)	212 (1.5)
New York	52 (1.1)	221 (1.3)	48 (1.1)	214 (1.5)
North Carolina	51 (0.9)	211 (1.2)	49 (0.9)	212 (1.3)
North Dakota	53 (1.1)	229 (1.0)	47 (1.1)	226 (1.0)
Ohio	51 (1.0)	219 (1.2)	49 (1.0)	216 (1.5)
Oklahoma	51 (1.1)	220 (1.1)	49 (1.1)	218 (1.3)
Pennsylvania	53 (1.0)	224 (1.6)	47 (1.0)	222 (1.6)
Rhode Island	51 (1.1)	215 (1.9)	49 (1.1)	213 (1.6)
South Carolina	50 (1.1)	211 (1.4)	50 (1.1)	211 (1.1)
Tennessee	52 (0.8)	209 (1.5)	48 (0.8)	210 (1.5)
Texas	49 (0.9)	218 (1.5)	51 (0.9)	216 (1.4)
Utah	51 (1.0)	223 (1.2)	49 (1.0)	223 (1.2)
Virginia	51 (1.0)	221 (1.6)	49 (1.0)	218 (1.4)
West Virginia	49 (0.9)	215 (1.5)	51 (0.9)	213 (1.1)
Wisconsin	51 (1.2)	229 (1.4)	49 (1.2)	226 (1.2)
Wyoming	50 (1.0)	226 (1.2)	50 (1.0)	223 (1.1)
TERRITORY				
Guam	52 (1.2)	189 (1.3)	48 (1.2)	194 (1.1)

The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample.

TABLE 2.6 | Average Mathematics Proficiency by Gender (continued)

PUBLIC SCHOOLS	Grade 8 - 1992				Grade 8 - 1990			
	Male		Female		Male		Female	
	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency
NATION	52 (0.6)	266 (1.2)	48 (0.6)	267 (1.2)	51 (1.1)	262 (1.7)	49 (1.1)	261 (1.4)
Northeast	53 (1.3)	267 (2.9)	47 (1.3)	267 (3.6)	50 (2.1)	271 (4.1)	50 (2.1)	269 (3.2)
Southeast	48 (1.2)	257 (1.6)	52 (1.2)	259 (1.4)	49 (2.8)	253 (2.9)	51 (2.8)	255 (2.5)
Central	56 (0.7)	272 (2.9)	44 (0.7)	274 (2.4)	50 (1.4)	266 (2.8)	50 (1.4)	264 (2.7)
West	51 (1.4)	266 (2.7)	49 (1.4)	268 (2.2)	55 (2.1)	262 (3.3)	45 (2.1)	259 (2.7)
STATES								
Alabama	52 (1.0)	253 (1.8)	48 (1.0)	250 (1.9)	50 (1.0)	254 (1.5)	50 (1.0)	252 (1.3)
Arizona	51 (1.0)	265 (1.4)	49 (1.0)	264 (1.4)»	50 (0.9)	262 (1.5)	50 (0.9)	257 (1.5)
Arkansas	51 (1.0)	256 (1.4)	49 (1.0)	255 (1.3)	50 (1.1)	257 (1.3)	50 (1.1)	255 (1.1)
California	49 (1.2)	259 (1.9)	51 (1.2)	261 (1.9)>	51 (0.9)	258 (1.6)	49 (0.9)	255 (1.3)
Colorado	51 (0.8)	273 (1.2)>	49 (0.8)	270 (1.3)>	51 (1.0)	269 (1.0)	49 (1.0)	266 (1.4)
Connecticut	50 (0.9)	274 (1.4)	50 (0.9)	272 (1.3)	48 (0.8)	271 (1.2)	52 (0.8)	269 (1.4)
Delaware	50 (1.2)	263 (1.4)	50 (1.2)	261 (1.3)	52 (1.2)	260 (1.6)	48 (1.2)	262 (1.6)
Dist. Columbia	49 (1.4)	233 (1.2)	51 (1.4)	235 (1.4)	47 (0.9)	230 (1.2)	53 (0.9)	233 (1.0)
Florida	49 (1.0)	259 (1.5)	51 (1.0)	259 (1.8)>	51 (1.1)	257 (1.6)	49 (1.1)	254 (1.4)
Georgia	48 (1.0)<	260 (1.5)	52 (1.0)>	257 (1.2)	51 (0.8)	259 (1.7)	49 (0.8)	258 (1.5)
Hawaii	52 (1.2)	254 (1.1)»	48 (1.2)	260 (1.2)>	53 (1.0)	248 (1.1)	47 (1.0)	254 (1.3)
Idaho	51 (1.0)	276 (1.1)>	49 (1.0)	272 (0.9)	52 (1.2)	272 (1.0)	48 (1.2)	270 (0.9)
Indiana	51 (1.0)	272 (1.4)	49 (1.0)	267 (1.3)	51 (0.9)	270 (1.4)	49 (0.9)	264 (1.4)
Iowa	52 (0.9)	284 (1.2)	48 (0.9)	282 (1.3)>	50 (1.2)	281 (1.2)	50 (1.2)	275 (1.3)
Kentucky	50 (1.0)	263 (1.4)	50 (1.0)	260 (1.4)>	51 (1.1)	259 (1.4)	49 (1.1)	256 (1.2)
Louisiana	47 (1.0)	251 (1.6)	53 (1.0)	247 (2.0)	50 (1.1)	248 (1.4)	50 (1.1)	245 (1.5)
Maine	51 (1.0)	278 (1.3)	49 (1.0)	278 (1.2)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	50 (1.0)	265 (1.6)	50 (1.0)	263 (1.6)	51 (0.8)	261 (1.5)	49 (0.8)	261 (1.8)
Massachusetts	50 (0.8)	273 (1.5)	50 (0.8)	271 (1.2)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	48 (1.0)<	269 (1.6)	52 (1.0)>	264 (1.5)	52 (1.0)	265 (1.4)	48 (1.0)	264 (1.3)
Minnesota	49 (1.0)	282 (1.4)>	51 (1.0)	282 (1.1)»	50 (1.0)	276 (1.1)	50 (1.0)	275 (1.1)
Mississippi	48 (1.0)	247 (1.6)	52 (1.0)	244 (1.4)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	52 (1.0)	272 (1.5)	48 (1.0)	269 (1.4)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	53 (1.2)	278 (1.3)	47 (1.2)	276 (1.4)	52 (1.2)	277 (1.4)	48 (1.2)	275 (1.4)
New Hampshire	50 (1.1)<	278 (1.3)>	50 (1.1)>	277 (1.2)	53 (1.1)	273 (1.1)	47 (1.1)	274 (1.2)
New Jersey	49 (1.0)	275 (1.6)	51 (1.0)	268 (1.7)	51 (1.0)	271 (1.4)	49 (1.0)	268 (1.4)
New Mexico	50 (1.0)	261 (1.4)	50 (1.0)	257 (1.0)>	50 (1.2)	259 (1.1)	50 (1.2)	254 (1.0)
New York	49 (1.2)	267 (2.4)	51 (1.2)	265 (2.3)	49 (1.3)	262 (1.6)	51 (1.3)	259 (1.7)
North Carolina	50 (0.9)	259 (1.4)»	50 (0.9)	257 (1.4)>	51 (1.0)	250 (1.3)	49 (1.0)	251 (1.2)
North Dakota	51 (1.1)	284 (1.3)	49 (1.1)	281 (1.4)	51 (1.6)	284 (1.5)	49 (1.6)	278 (1.6)
Ohio	50 (1.1)	269 (1.8)	50 (1.1)	266 (1.8)	53 (0.9)	266 (1.3)	47 (0.9)	261 (1.2)
Oklahoma	50 (1.0)	269 (1.2)	50 (1.0)	266 (1.6)>	50 (0.9)	266 (1.5)	50 (0.9)	261 (1.5)
Pennsylvania	50 (1.0)	273 (1.6)	50 (1.0)	268 (1.7)	51 (1.1)	269 (1.7)	49 (1.1)	263 (1.8)
Rhode Island	50 (0.8)	265 (1.0)>	50 (0.8)	265 (1.0)»	50 (0.9)	262 (1.0)	50 (0.9)	259 (1.0)
South Carolina	50 (0.9)	260 (1.4)	50 (0.9)	260 (1.0)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	50 (1.1)	260 (1.7)	50 (1.1)	256 (1.5)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	49 (0.9)	266 (1.4)>	51 (0.9)	261 (1.6)>	50 (1.0)	260 (1.8)	50 (1.0)	256 (1.4)
Utah	52 (1.2)	275 (1.0)	48 (1.2)	272 (1.0)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	50 (0.7)	268 (1.6)	50 (0.7)	267 (1.2)	49 (0.9)	266 (2.0)	51 (0.9)	263 (1.4)
West Virginia	49 (1.0)	259 (1.1)	51 (1.0)	258 (1.2)	52 (1.1)	256 (1.5)	48 (1.1)	255 (1.1)
Wisconsin	51 (1.1)	278 (1.8)	49 (1.1)	277 (1.6)	50 (1.1)	275 (1.4)	50 (1.1)	274 (1.6)
Wyoming	50 (1.0)	274 (1.1)	50 (1.0)	275 (1.2)>	51 (0.8)	274 (0.8)	49 (0.8)	270 (0.9)
TERRITORIES								
Guam	52 (1.2)	232 (1.4)	48 (1.2)	237 (1.5)>	51 (1.2)	232 (1.4)	49 (1.2)	231 (1.1)
Virgin Islands	53 (1.4)>	221 (1.5)	47 (1.4)<	222 (1.4)>	49 (1.1)	221 (1.1)	51 (1.1)	217 (1.3)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated. (xxx) Did not participate in the 1990 Trial State Assessment.

TABLE 2.7 | Achievement Levels by Gender

PUBLIC SCHOOLS	Grade 4 - 1992							
	Percentage of Students At or Above Advanced		Percentage of Students At or Above Proficient		Percentage of Students At or Above Basic		Percentage of Students Below Basic	
	Male	Female	Male	Female	Male	Female	Male	Female
NATION	3 (0.5)	2 (0.3)	19 (1.1)	16 (1.4)	60 (1.2)	58 (1.7)	40 (1.2)	42 (1.7)
Northeast	4 (1.1)	2 (1.1)	27 (3.3)	20 (3.4)	66 (2.7)	62 (4.5)	34 (2.7)	38 (4.5)
Southeast	1 (0.4)	1 (0.6)	11 (1.3)	11 (2.4)	48 (2.4)	48 (3.8)	52 (2.4)	52 (3.8)
Central	2 (1.0)	2 (0.4)	23 (2.9)	17 (2.7)	69 (4.0)	63 (4.0)	31 (4.0)	37 (4.0)
West	3 (1.0)	2 (0.7)	18 (2.3)	16 (2.7)	58 (2.7)	60 (2.5)	42 (2.7)	40 (2.5)
STATES								
Alabama	1 (0.3)	1 (0.3)	11 (1.3)	10 (1.5)	46 (2.7)	44 (2.4)	54 (2.7)	56 (2.4)
Arizona	1 (0.4)	1 (0.4)	14 (1.2)	13 (1.2)	55 (2.0)	56 (1.8)	45 (2.0)	44 (1.8)
Arkansas	1 (0.3)	0 (0.2)	10 (1.0)	10 (1.1)	50 (1.6)	48 (2.2)	50 (1.6)	52 (2.2)
California	2 (0.7)	1 (0.4)	13 (1.6)	12 (1.2)	48 (2.3)	48 (2.2)	52 (2.3)	52 (2.2)
Colorado	3 (0.6)	2 (0.6)	19 (1.3)	17 (1.4)	64 (1.7)	61 (1.8)	36 (1.7)	39 (1.8)
Connecticut	4 (0.9)	3 (0.8)	27 (1.7)	23 (1.8)	70 (1.9)	68 (1.6)	30 (1.9)	32 (1.6)
Delaware	3 (0.6)	2 (0.6)	18 (1.5)	16 (1.6)	58 (2.0)	55 (2.0)	42 (2.0)	45 (2.0)
Dist. Columbia	1 (0.3)	1 (0.3)	6 (0.7)	5 (0.6)	26 (1.7)	24 (1.4)	74 (1.7)	76 (1.4)
Florida	2 (0.5)	1 (0.5)	15 (1.8)	12 (1.4)	55 (2.1)	52 (2.5)	45 (2.1)	48 (2.5)
Georgia	2 (0.5)	1 (0.5)	16 (1.5)	15 (1.2)	54 (2.3)	56 (2.1)	46 (2.3)	44 (2.1)
Hawaii	2 (0.6)	1 (0.3)	16 (1.2)	14 (1.1)	51 (2.3)	56 (1.9)	49 (2.3)	44 (1.9)
Idaho	2 (0.5)	1 (0.3)	18 (1.2)	15 (1.4)	67 (2.2)	62 (1.8)	33 (2.2)	38 (1.8)
Indiana	2 (0.6)	1 (0.4)	17 (1.5)	15 (1.2)	64 (2.2)	59 (2.0)	36 (2.2)	41 (2.0)
Iowa	4 (0.5)	3 (0.6)	28 (1.5)	26 (1.6)	75 (1.5)	73 (1.8)	25 (1.5)	27 (1.8)
Kentucky	2 (0.8)	1 (0.5)	14 (1.6)	12 (1.2)	53 (2.0)	53 (1.7)	47 (2.0)	47 (1.7)
Louisiana	1 (0.3)	0 (0.3)	9 (0.9)	7 (1.0)	41 (2.5)	40 (2.1)	59 (2.5)	60 (2.1)
Maine	3 (0.8)	3 (0.7)	29 (1.9)	28 (1.9)	76 (1.6)	76 (2.1)	24 (1.6)	24 (2.1)
Maryland	3 (0.6)	2 (0.5)	21 (1.5)	17 (1.5)	59 (1.7)	55 (2.2)	41 (1.7)	45 (2.2)
Massachusetts	4 (0.8)	2 (0.5)	26 (1.7)	22 (1.6)	71 (1.6)	68 (2.0)	29 (1.6)	32 (2.0)
Michigan	2 (0.8)	1 (0.4)	22 (2.1)	16 (1.8)	65 (2.5)	59 (2.5)	35 (2.5)	41 (2.5)
Minnesota	4 (0.7)	3 (0.6)	29 (1.4)	25 (1.6)	72 (1.8)	72 (1.8)	28 (1.8)	28 (1.8)
Mississippi	0 (0.1)	0 (0.2)	6 (0.9)	7 (0.8)	36 (1.7)	39 (1.8)	64 (1.7)	61 (1.8)
Missouri	2 (0.5)	1 (0.4)	20 (1.6)	19 (2.0)	63 (2.1)	64 (1.8)	37 (2.1)	36 (1.8)
Nebraska	3 (0.7)	2 (0.7)	24 (1.7)	21 (2.4)	69 (2.0)	67 (2.4)	31 (2.0)	33 (2.4)
New Hampshire	4 (0.7)	2 (0.9)	28 (2.0)	24 (2.0)	74 (2.2)	74 (1.8)	26 (2.2)	26 (1.8)
New Jersey	4 (1.1)	2 (0.7)	27 (1.9)	24 (2.0)	71 (2.6)	69 (2.3)	29 (2.6)	31 (2.3)
New Mexico	1 (0.6)	1 (0.4)	11 (1.2)	11 (2.1)	52 (2.5)	51 (2.0)	48 (2.5)	49 (2.0)
New York	3 (0.5)	1 (0.4)	21 (1.6)	14 (1.4)	63 (1.8)	55 (2.7)	37 (1.8)	45 (2.7)
North Carolina	2 (0.5)	1 (0.4)	14 (1.1)	13 (1.1)	51 (2.1)	53 (2.0)	49 (2.1)	47 (2.0)
North Dakota	3 (0.6)	1 (0.4)	25 (1.6)	21 (1.8)	75 (1.7)	73 (1.6)	25 (1.7)	27 (1.6)
Ohio	2 (0.5)	1 (0.4)	18 (1.3)	15 (1.5)	61 (1.9)	57 (2.1)	39 (1.9)	43 (2.1)
Oklahoma	1 (0.4)	1 (0.4)	15 (1.6)	14 (1.3)	64 (1.8)	59 (1.9)	36 (1.8)	41 (1.9)
Pennsylvania	3 (0.6)	2 (0.7)	24 (2.0)	21 (1.5)	67 (2.4)	66 (2.1)	33 (2.4)	34 (2.1)
Rhode Island	2 (0.5)	1 (0.5)	15 (1.6)	12 (1.3)	57 (2.6)	54 (2.4)	43 (2.6)	46 (2.4)
South Carolina	1 (0.5)	1 (0.5)	14 (1.5)	12 (1.2)	50 (2.0)	49 (2.0)	50 (2.0)	51 (2.0)
Tennessee	1 (0.3)	1 (0.3)	10 (1.3)	10 (1.1)	49 (2.2)	50 (2.7)	51 (2.2)	50 (2.7)
Texas	2 (0.7)	1 (0.5)	17 (1.7)	14 (1.4)	59 (1.9)	57 (2.1)	41 (1.9)	43 (2.1)
Utah	2 (0.5)	2 (0.4)	20 (1.5)	19 (1.4)	67 (1.9)	68 (2.1)	33 (1.9)	32 (2.1)
Virginia	4 (0.8)	2 (0.7)	21 (1.9)	18 (1.6)	61 (1.8)	59 (1.6)	39 (1.8)	41 (1.6)
West Virginia	2 (0.5)	1 (0.4)	14 (1.5)	11 (1.0)	55 (2.2)	53 (1.9)	45 (2.2)	47 (1.9)
Wisconsin	4 (0.7)	2 (0.6)	27 (1.8)	23 (1.8)	74 (1.5)	71 (1.6)	26 (1.5)	29 (1.6)
Wyoming	2 (0.6)	1 (0.3)	22 (1.6)	17 (1.3)	72 (1.7)	68 (1.8)	28 (1.7)	32 (1.8)
TERRITORY								
Guam	0 (0.2)	1 (0.2)	4 (0.7)	5 (0.8)	25 (2.1)	31 (1.3)	75 (2.1)	69 (1.3)

The standard errors of the estimated percentages appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. Descriptions of mathematics proficiency at the three achievement levels are found in Chapter One.

TABLE 2.7 | *Achievement Levels by Gender (continued)*

PUBLIC SCHOOLS	Grade 8 - 1992							
	Percentage of Students At or Above Advanced		Percentage of Students At or Above Proficient		Percentage of Students At or Above Basic		Percentage of Students Below Basic	
	Male	Female	Male	Female	Male	Female	Male	Female
NATION	3 (0.6)	3 (0.6)	24 (1.3)	23 (1.4)	61 (1.4)	61 (1.3)	39 (1.4)	39 (1.3)
Northeast	6 (1.3)	5 (2.2)	26 (3.0)	25 (3.6)	59 (4.3)	60 (4.1)	41 (4.3)	40 (4.1)
Southeast	1 (0.6)	2 (0.5)	16 (1.4)	17 (1.7)	53 (2.1)	53 (1.9)	47 (2.1)	47 (1.9)
Central	3 (0.8)	4 (1.1)	29 (3.6)	27 (3.1)	69 (3.4)	70 (3.0)	31 (3.4)	30 (3.0)
West	4 (1.3)	4 (1.2)	24 (2.8)	24 (2.7)	61 (3.2)	63 (2.8)	39 (3.2)	37 (2.8)
STATES								
Alabama	2 (0.6)	1 (0.2)	14 (1.4)	11 (1.3)	46 (2.2)	43 (2.4)	54 (2.2)	57 (2.4)
Arizona	2 (0.5)	2 (0.5)	20 (1.8)	17 (1.7)	61 (2.3)	61 (2.0) >	39 (2.3)	39 (2.0) <
Arkansas	1 (0.5)	1 (0.3)	13 (1.3)	12 (1.1)	51 (2.1)	50 (1.9)	49 (2.1)	50 (1.9)
California	2 (0.8)	3 (0.9)	20 (1.5)	20 (1.8)	54 (2.3)	56 (2.2)	46 (2.3)	44 (2.2)
Colorado	3 (0.6)	2 (0.6)	28 (1.6)	24 (1.6)	71 (1.6)	67 (1.8)	29 (1.6)	33 (1.8)
Connecticut	5 (0.8)	4 (0.6)	32 (1.5)	29 (1.4)	69 (1.8)	68 (1.5)	31 (1.8)	32 (1.5)
Delaware	3 (0.6)	2 (0.5)	19 (1.6)	18 (1.8)	58 (1.7)	56 (1.6)	42 (1.7)	44 (1.6)
Dist. Columbia	1 (0.3)	0 (0.5)	5 (1.2)	6 (1.1)	25 (1.8)	27 (2.0)	75 (1.8)	73 (2.0)
Florida	2 (0.6)	2 (0.5)	18 (1.5)	18 (1.3) >	54 (2.0)	55 (2.2)	46 (2.0)	45 (2.2)
Georgia	2 (0.5)	1 (0.4)	18 (1.5)	14 (1.1)	55 (1.9)	52 (1.6)	45 (1.9)	48 (1.6)
Hawaii	2 (0.4)	3 (0.5)	15 (1.1)	19 (1.1)	48 (1.5) >	55 (1.8)	52 (1.5) <	45 (1.8)
Idaho	3 (0.6)	2 (0.3)	30 (1.6)	24 (1.3)	75 (1.5)	71 (1.5)	25 (1.5)	29 (1.5)
Indiana	4 (0.7)	3 (0.5)	26 (1.9)	22 (1.7)	68 (1.7)	63 (1.8)	32 (1.7)	37 (1.8)
Iowa	5 (0.8)	4 (0.9)	39 (1.6)	36 (1.8) >	81 (1.4)	81 (1.6) >	19 (1.4)	19 (1.6) <
Kentucky	3 (0.6)	1 (0.4)	18 (1.7)	16 (1.5)	58 (1.8)	57 (1.8)	42 (1.8)	43 (1.8)
Louisiana	1 (0.2)	1 (0.2)	10 (1.2)	10 (1.4)	45 (2.2)	40 (2.3)	55 (2.2)	60 (2.3)
Maine	4 (0.8)	3 (0.8)	32 (2.4)	30 (2.3)	76 (1.6)	79 (1.8)	24 (1.6)	21 (1.8)
Maryland	5 (0.9)	3 (0.5)	25 (1.8)	23 (1.7)	60 (1.7)	58 (1.8)	40 (1.7)	42 (1.8)
Massachusetts	4 (0.9)	3 (0.6)	31 (2.1)	25 (1.6)	68 (1.7)	68 (1.7)	32 (1.7)	32 (1.7)
Michigan	3 (0.7)	2 (0.5)	26 (2.1)	20 (1.8)	65 (1.8)	61 (2.2)	35 (1.8)	39 (2.2)
Minnesota	6 (1.0)	6 (0.7) >	37 (1.8) >	36 (1.4) »	78 (1.3)	79 (1.6)	22 (1.3)	21 (1.6)
Mississippi	1 (0.3)	0 (0.2)	10 (0.9)	8 (1.1)	40 (1.9)	37 (1.9)	60 (1.9)	63 (1.9)
Missouri	3 (0.5)	2 (0.5)	25 (1.8)	22 (1.5)	68 (1.7)	68 (2.1)	32 (1.7)	32 (2.1)
Nebraska	4 (0.8)	3 (0.8)	33 (2.0)	30 (2.3)	76 (1.5)	75 (1.6)	24 (1.5)	25 (1.6)
New Hampshire	4 (0.8)	3 (0.7)	31 (1.8) >	29 (1.6)	77 (1.4)	76 (1.4)	23 (1.4)	24 (1.4)
New Jersey	5 (0.7)	3 (0.9)	31 (1.8)	25 (1.8)	71 (2.0)	64 (2.1)	29 (2.0)	36 (2.1)
New Mexico	2 (0.5)	1 (0.3)	16 (1.4)	12 (1.3)	56 (2.2)	52 (1.5)	44 (2.2)	48 (1.5)
New York	4 (0.9)	3 (0.6)	25 (2.0)	23 (1.7) >	64 (2.7)	62 (2.7)	36 (2.7)	38 (2.7)
North Carolina	2 (0.4)	1 (0.5)	17 (1.2) >	13 (1.2)	53 (1.9) >	52 (1.7) >	47 (1.9) <	48 (1.7) <
North Dakota	5 (0.9)	3 (0.8)	37 (2.1)	34 (2.0)	84 (1.6)	81 (1.8)	16 (1.6)	19 (1.8)
Ohio	3 (0.7)	2 (0.4)	23 (1.9)	22 (1.8) >	65 (2.5)	63 (2.1)	35 (2.5)	37 (2.1)
Oklahoma	2 (0.6)	1 (0.3)	23 (1.5)	19 (1.8)	66 (2.3)	64 (2.4)	34 (2.3)	36 (2.4)
Pennsylvania	4 (0.9)	3 (0.6)	29 (1.6)	23 (2.0)	70 (1.9)	65 (2.1)	30 (1.9)	35 (2.1)
Rhode Island	2 (0.4)	2 (0.6)	20 (1.4)	19 (1.7)	62 (1.8)	62 (1.5) »	38 (1.8)	38 (1.5) «
South Carolina	2 (0.6)	2 (0.7)	19 (1.5)	17 (1.2)	54 (1.9)	53 (1.4)	46 (1.9)	47 (1.4)
Tennessee	2 (0.6)	1 (0.3)	18 (1.5)	12 (1.2)	56 (2.3)	50 (2.0)	44 (2.3)	50 (2.0)
Texas	4 (0.9)	3 (0.8)	24 (1.5) >	19 (1.9)	60 (1.6)	56 (2.0)	40 (1.6)	44 (2.0)
Utah	3 (0.6)	2 (0.5)	29 (1.5)	26 (1.3)	74 (1.7)	71 (1.7)	26 (1.7)	29 (1.7)
Virginia	4 (0.8)	3 (0.5)	24 (1.7)	22 (1.4)	63 (2.0)	62 (1.9)	37 (2.0)	38 (1.9)
West Virginia	1 (0.3)	1 (0.3)	13 (1.3)	12 (1.1)	54 (1.8)	52 (2.0)	46 (1.8)	48 (2.0)
Wisconsin	4 (0.9)	4 (0.6)	32 (1.7)	32 (1.9)	77 (2.4)	75 (2.0)	23 (2.4)	25 (2.0)
Wyoming	3 (0.7)	2 (0.6)	26 (1.5)	26 (1.8)	72 (1.6)	74 (1.7)	28 (1.6)	26 (1.7)
TERRITORIES								
Guam	1 (0.3)	1 (0.4)	7 (1.0)	7 (1.0)	29 (1.6)	30 (2.0)	71 (1.6)	70 (2.0)
Virgin Islands	0 (0.1)	0 (0.0)	1 (0.5)	1 (0.4)	12 (1.2)	13 (1.6)	88 (1.2)	87 (1.6)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

TABLE 2.7 | Achievement Levels by Gender (continued)

PUBLIC SCHOOLS	Grade 8 - 1990							
	Percentage of Students At or Above Advanced		Percentage of Students At or Above Proficient		Percentage of Students At or Above Basic		Percentage of Students Below Basic	
	Male	Female	Male	Female	Male	Female	Male	Female
NATION	3 (0.5)	2 (0.5)	21 (1.6)	18 (1.3)	57 (1.9)	57 (1.6)	43 (1.9)	43 (1.6)
Northeast	4 (0.8)	3 (1.5)	27 (4.1)	24 (3.8)	64 (4.8)	67 (3.7)	36 (4.8)	33 (3.7)
Southeast	2 (1.0)	1 (0.4)	16 (2.6)	14 (2.3)	47 (3.4)	50 (3.3)	53 (3.4)	50 (3.3)
Central	3 (1.0)	1 (0.7)	23 (3.4)	17 (2.9)	61 (3.2)	62 (3.2)	39 (3.2)	38 (3.2)
West	3 (1.0)	3 (1.1)	19 (3.2)	17 (2.4)	58 (3.6)	55 (3.1)	42 (3.6)	45 (3.1)
STATES								
Alabama	1 (0.3)	1 (0.4)	13 (1.2)	10 (1.2)	48 (1.9)	46 (1.9)	52 (1.9)	54 (1.9)
Arizona	2 (0.5)	1 (0.5)	18 (1.5)	14 (1.6)	58 (2.1)	51 (2.2)	42 (2.1)	49 (2.2)
Arkansas	1 (0.4)	0 (0.2)	14 (1.2)	11 (1.2)	52 (1.7)	50 (1.9)	48 (1.7)	50 (1.9)
California	2 (0.4)	2 (0.4)	17 (1.7)	15 (1.5)	52 (2.2)	50 (1.5)	48 (2.2)	50 (1.5)
Colorado	3 (0.6)	2 (0.6)	23 (1.2)	20 (1.7)	66 (1.6)	63 (1.8)	34 (1.6)	37 (1.8)
Connecticut	4 (0.7)	3 (0.5)	28 (1.6)	25 (1.5)	67 (1.7)	65 (1.7)	33 (1.7)	35 (1.7)
Delaware	2 (0.7)	2 (0.5)	20 (1.3)	18 (1.8)	53 (1.9)	56 (2.0)	47 (1.9)	44 (2.0)
Dist. Columbia	1 (0.4)	1 (0.3)	3 (0.8)	4 (0.9)	20 (1.6)	22 (1.3)	80 (1.6)	78 (1.3)
Florida	2 (0.6)	1 (0.4)	17 (1.2)	12 (1.3)	50 (1.9)	48 (1.9)	50 (1.9)	52 (1.9)
Georgia	3 (0.7)	2 (0.5)	18 (1.7)	16 (1.4)	54 (1.7)	53 (2.0)	46 (1.7)	47 (2.0)
Hawaii	2 (0.5)	2 (0.4)	14 (0.9)	15 (1.5)	42 (1.4)	49 (1.7)	58 (1.4)	51 (1.7)
Idaho	2 (0.5)	1 (0.4)	25 (2.0)	20 (1.5)	71 (1.3)	69 (1.6)	29 (1.3)	31 (1.6)
Indiana	4 (0.9)	2 (0.6)	23 (1.8)	18 (1.5)	65 (1.7)	61 (2.1)	35 (1.7)	39 (2.1)
Iowa	5 (0.8)	3 (0.5)	34 (1.8)	27 (2.0)	77 (1.2)	75 (1.6)	23 (1.2)	25 (1.6)
Kentucky	2 (0.5)	1 (0.3)	15 (1.4)	12 (1.1)	52 (2.0)	49 (2.2)	48 (2.0)	51 (2.2)
Louisiana	1 (0.4)	0 (0.2)	9 (1.3)	6 (0.9)	40 (1.9)	37 (2.1)	60 (1.9)	63 (2.1)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	4 (0.7)	2 (0.6)	21 (1.4)	19 (1.5)	56 (1.8)	56 (2.3)	44 (1.8)	44 (2.3)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	3 (0.6)	2 (0.5)	21 (1.7)	18 (1.6)	61 (1.7)	60 (1.9)	39 (1.7)	40 (1.9)
Minnesota	5 (0.6)	3 (0.6)	30 (1.3)	27 (1.7)	73 (1.6)	75 (1.7)	27 (1.6)	25 (1.7)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	5 (0.8)	3 (0.7)	31 (2.0)	28 (2.0)	74 (1.5)	74 (1.7)	26 (1.5)	26 (1.7)
New Hampshire	3 (0.7)	3 (0.8)	24 (1.6)	26 (1.8)	71 (2.1)	71 (1.9)	29 (2.1)	29 (1.9)
New Jersey	5 (0.9)	3 (0.5)	27 (1.7)	24 (1.6)	66 (2.3)	63 (1.7)	34 (2.3)	37 (1.7)
New Mexico	2 (0.5)	1 (0.4)	15 (1.4)	11 (1.3)	54 (1.9)	47 (1.6)	46 (1.9)	53 (1.6)
New York	4 (0.8)	2 (0.4)	21 (1.5)	17 (1.2)	57 (2.0)	56 (2.1)	43 (2.0)	44 (2.1)
North Carolina	1 (0.4)	1 (0.4)	12 (1.0)	11 (1.2)	44 (1.8)	44 (1.8)	56 (1.8)	56 (1.8)
North Dakota	6 (1.0)	2 (0.7)	37 (2.4)	31 (2.5)	83 (2.1)	79 (2.1)	17 (2.1)	21 (2.1)
Ohio	2 (0.5)	1 (0.4)	21 (1.6)	16 (1.4)	63 (1.6)	56 (1.8)	37 (1.6)	44 (1.8)
Oklahoma	2 (0.7)	1 (0.4)	19 (1.6)	14 (1.5)	62 (2.0)	57 (2.2)	38 (2.0)	43 (2.2)
Pennsylvania	3 (0.6)	2 (0.4)	25 (1.8)	18 (1.7)	66 (2.2)	60 (2.5)	34 (2.2)	40 (2.5)
Rhode Island	2 (0.6)	1 (0.3)	20 (1.4)	17 (1.3)	56 (1.3)	54 (1.3)	44 (1.3)	46 (1.3)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	3 (0.6)	1 (0.4)	17 (1.7)	14 (1.3)	54 (2.3)	50 (2.0)	46 (2.3)	50 (2.0)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	5 (1.0)	3 (0.8)	22 (2.1)	19 (1.6)	59 (2.0)	57 (1.7)	41 (2.0)	43 (1.7)
West Virginia	1 (0.4)	1 (0.3)	13 (1.2)	11 (1.0)	50 (1.9)	49 (1.7)	50 (1.9)	51 (1.7)
Wisconsin	4 (0.9)	3 (0.6)	30 (1.7)	28 (2.1)	73 (1.8)	72 (2.2)	27 (1.8)	28 (2.2)
Wyoming	3 (0.6)	1 (0.5)	27 (1.3)	20 (1.3)	73 (1.5)	69 (1.8)	27 (1.5)	31 (1.8)
TERRITORIES								
Guam	1 (0.4)	0 (0.1)	6 (0.9)	5 (1.2)	28 (2.1)	26 (1.8)	72 (2.1)	74 (1.8)
Virgin Islands	0 (0.2)	0 (0.0)	1 (0.8)	1 (0.2)	12 (1.6)	9 (1.3)	88 (1.6)	91 (1.3)

(xxx) Did not participate in the 1990 Trial State Assessment.

Between 1990 and 1992 for eighth graders, the only significant increase in percentages of students reaching the Advanced level was for female students in Minnesota. Larger proportions of male students performed at or above the Proficient level in 1992 than in 1990 in Minnesota, New Hampshire, North Carolina, and Texas. Gains in the percentages of female students reaching the Proficient level were found in Florida, Iowa, Minnesota, New York, and Ohio. At the Basic level, male eighth-grade students made gains in Hawaii and North Carolina, as did female students in Arizona, Iowa, North Carolina, and Rhode Island.

National Performance by Type of Community

Average mathematics proficiency and achievement levels for the nation by type of community for grades 4, 8, and 12 for 1992 and 1990 are shown in TABLE 2.8. Students were classified by the type of community in which their schools were located and by principals' reports of the percentages of students in their schools whose parents were classified into various occupational categories. The advantaged urban category represents about 10 percent of the students at each grade attending schools in suburban and urban communities where students' parents had professional or managerial jobs. Similarly, the disadvantaged urban category represents another 10 percent of the students, who attended schools in suburban and urban locales where high proportions of the parents were on welfare or not regularly employed. The extreme rural category includes the approximately 10 percent of students attending schools in the most rural areas, where many of the parents were farmers or farm workers. The 70 percent of students not falling into one of these three "extreme" community categories were classified as attending schools in "other" types of communities.

TABLE 2.8 Average Mathematics Proficiency and Achievement Levels by Type of Community, Grades 4, 8, and 12

				Percentage of Students At or Above			
	Assessment Years	Percentage of Students	Average Proficiency	Advanced	Proficient	Basic	Percentage Below Basic
Grade 4							
Advantaged Urban	**1992**	12(1.8)	237(2.1)	7(1.8)	36(3.1)	81(2.2)	19(2.2)
	1990	11(2.5)	231(3.0)!	4(1.5)	29(4.8)	77(3.4)	23(3.4)
Disadvantaged Urban	**1992**	9(1.4)	193(2.8)	0(0.2)	3(1.0)	27(3.2)	73(3.2)
	1990	10(1.5)	195(3.0)	0(0.2)	4(1.2)	31(4.3)	69(4.3)
Extreme Rural	**1992**	12(2.2)	216(3.6)	1(0.5)	15(2.4)	60(5.1)	40(5.1)
	1990	10(1.9)	214(4.9)	1(1.0)	12(3.0)	56(7.3)	44(7.3)
Other	**1992**	66(3.0)	219(0.9)>	2(0.3)	18(1.1)>	62(1.2)>	38(1.2)<
	1990	70(3.6)	213(1.1)	1(0.5)	13(1.2)	53(1.6)	47(1.6)
Grade 8							
Advantaged Urban	**1992**	10(1.8)	288(3.6)	10(2.1)	48(4.2)>	82(3.0)	18(3.0)
	1990	11(2.9)	280(3.2)!	5(1.8)	34(3.2)	78(3.6)	22(3.6)
Disadvantaged Urban	**1992**	9(1.3)	238(2.6)<	1(0.3)	6(1.5)	28(3.1)<	72(3.1)>
	1990	10(2.5)	249(3.8)!	1(0.7)	11(3.5)	42(4.3)	58(4.3)
Extreme Rural	**1992**	9(2.6)	267(4.6)!	2(1.0)	21(3.8)	65(6.2)	35(6.2)
	1990	9(2.8)	257(4.4)!	1(0.7)	14(3.5)	51(5.7)	49(5.7)
Other	**1992**	72(3.1)	268(1.1)>	3(0.5)	24(1.2)>	64(1.5)	36(1.5)
	1990	70(3.9)	262(1.7)	2(0.4)	19(1.2)	58(2.0)	42(2.0)
Grade 12							
Advantaged Urban	**1992**	12(2.1)	316(2.6)	6(1.4)	32(2.9)	82(2.8)	18(2.8)
	1990	9(2.8)	306(6.2)!	4(1.7)	23(4.9)	72(7.4)	28(7.4)
Disadvantaged Urban	**1992**	10(1.4)	279(2.4)	0(0.4)	6(1.4)	40(3.0)	60(3.0)
	1990	10(2.7)	276(6.0)!	0(0.2)	5(2.6)	36(7.7)	64(7.7)
Extreme Rural	**1992**	12(1.6)	293(1.9)	0(0.3)	10(1.6)	56(2.6)	44(2.6)
	1990	10(3.2)	293(3.3)!	1(0.6)	11(1.6)	58(5.6)	42(5.6)
Other	**1992**	66(3.0)	300(0.9)>	2(0.3)	16(1.0)	66(1.2)	34(1.2)
	1990	71(4.4)	295(1.3)	2(0.3)	13(1.1)	61(1.6)	39(1.6)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. ! Interpret with caution -- the nature of the sample does not allow accurate determination of the variability of this estimated statistic. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent confidence for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details). When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 percent or less were rounded to 0 percent. Percentages may not total 100 percent due to rounding error.

At all three grades, the advantaged urban students performed better than the students in the extreme rural category, who, in turn, performed better than those students attending schools in disadvantaged urban areas. In the fourth and eighth grades, the students in extreme rural schools had about the same average proficiency as students in the "other" category, but at grade 12 students in the "other" category had higher average proficiency than those in the extreme rural areas.

Reflecting the overall national gains in performance from 1990 to 1992, students attending schools in "other" types of communities showed gains at all three grades. In contrast, there were few significant changes in performance for students attending schools in the extreme types of communities. The one exception was a decline in the average mathematics proficiency of eighth-grade students attending schools in disadvantaged urban areas. Because this decline was unusual in the context of the generally positive trends between 1990 and 1992, and because it occurred for students who may be considered more at risk than their counterparts, some additional analyses were conducted.

As explained above, the approach in defining the community types is to classify approximately the most extreme 10 percent of the advantaged urban, disadvantaged urban, and rural schools according to economic indicators as defined by parents' occupation. Because the percentages are kept essentially constant from assessment year to assessment year, the classification criteria can change. Thus, to provide additional perspective for the results for disadvantaged urban students, the results were also analyzed using the 1990 cutoff criteria. These results, presented in the Procedural Appendix under the discussion of the NAEP reporting groups, indicate that using the 1990 criteria, the percentage of students classified as disadvantaged urban would have been 14 percent rather than 9 percent at grade 8, but on the whole their proficiency would have been comparable across assessments -- 248 in 1992 and 249 in 1990. This additional perspective also shows that in 1992 the most extreme of these students were more disadvantaged according to the NAEP criteria as well as having lower average proficiency.

Across the three grades, between 6 to 10 percent of the advantaged urban students were estimated to have attained the Advanced level. In comparison, virtually no disadvantaged urban students at grades 4 and 12, and only about 1 percent at grade 8 reached that level. For extreme rural students, approximately 1 percent in the fourth grade and 2 percent at the eighth grade were at the Advanced level. From about one-third to almost one-half of the advantaged urban students were at or above the Proficient level in all three grades. For disadvantaged urban students, only 3 percent of the fourth graders and 6 percent of the eighth and twelfth graders were estimated to be at this same level. From about 10 percent (grade 12) to 21 percent (grade 8) of the extreme rural students were classified as Proficient. More than 80 percent of the advantaged urban students were estimated to be at or above the Basic level at all three grades.

Considering the results by type of community, no statistically significant gains were made between 1990 and 1992 in the percentages of students reaching the Advanced level. Gains at the Proficient level were made by advantaged urban students in grade 8 and by students in other communities at grades 4 and 8. Students in other communities also made gains at or above the Basic level at grade 4. In contrast, there was a significant decline (42 percent to 28 percent) in the eighth-grade disadvantaged urban students reaching this level.

Performance by Type of Community for the States

TABLE 2.9 displays average mathematics proficiency by type of community for grade 4 in 1992 and for grade 8 in 1990 and 1992 for those states and territories that participated in the Trial State Assessment Program.

The pattern at grades 4 and 8 in 1992 mirrors the pattern for the nation, with advantaged urban students performing best, followed by those in extreme rural and disadvantaged urban schools. In many instances, however, the apparent differences were not statistically significant, particularly between the rural and either the advantaged or disadvantaged urban student population. The advantaged urban students tended, however, to have higher average mathematics proficiency than did their less advantaged counterparts.

There were some changes between 1990 and 1992 at grade 8. Hawaii experienced a decline in the average proficiency of students in advantaged urban areas, while this same group experienced an increase in Kentucky, New Hampshire, New York, Ohio, Rhode Island, and Texas. Oklahoma showed an increase in the average proficiency of students attending schools in disadvantaged urban communities, while Idaho, Iowa, Kentucky, Louisiana, and Ohio saw an increase in the proficiency of their extreme rural students. In Guam, there was a decline in average mathematics proficiency for eighth graders in extreme rural communities.

TABLE 2.10 contains the achievement level results by type of community for states and territories participating in the Trial State Assessments in 1990 and 1992 in fourth- and eighth-grade mathematics.

At grade 4, all states and territories with advantaged urban students had at least a small percentage (1 to 10) of those students estimated to be at or above the Advanced level. Few fourth graders attending schools in disadvantaged urban or extreme rural communities were estimated to have reached the Advanced level -- from 0 to 4 percent.

All jurisdictions, except the District of Columbia, had more than 20 percent of their advantaged urban fourth graders estimated to be at or above the Proficient level. In contrast, no jurisdiction had more than 17 percent of its disadvantaged urban fourth graders estimated to be at or above the Proficient level. Approximately one-fourth of the extreme rural fourth graders in several states, including Iowa, Maine, Minnesota, New Hampshire, Pennsylvania, Wisconsin, and Wyoming, were estimated to have reached the Proficient level, with the percentages becoming smaller for other participating jurisdictions. In the District of Columbia, about half the advantaged urban fourth-grade students were estimated to be below the Basic level as were 43 percent in Delaware, which contrasts with 30 percent or fewer for other jurisdictions. In nearly all participating states and territories, it is estimated that 40 percent or more of the disadvantaged urban fourth graders achieved below the Basic level, including 80 percent or more in the District of Columbia and Louisiana. For the majority of participating states, fewer than half of the fourth graders attending school in extreme rural areas were estimated to have performed below the Basic level.

At the eighth grade in 1992, all states with enough advantaged urban students for reporting purposes had at least a small percentage -- from about 1 to 14 percent -- of those students at or above the Advanced level. In contrast, from 0 to 4 percent of the disadvantaged urban eighth graders were estimated to have reached this level, as were from 0 to 5 percent of those in extreme rural schools. Between 1990 and 1992, there were few changes by type of community in the percentages of eighth graders reaching the Advanced level.

Three jurisdictions, Alabama, the District of Columbia, and Hawaii, had fewer than 20 percent of their advantaged urban eighth graders estimated to be achieving at or above the Proficient level. On the other hand, only four states, Idaho, Iowa, Utah, and Wyoming, had more than 20 percent of their disadvantaged urban students estimated to be at or above the same achievement level. It was estimated that for the extreme rural students at eighth grade, about half of the states had more than 20 percent at or above the Proficient level and about half had fewer than 20 percent at or above that level. Improvements at the Proficient level were noted for advantaged urban students in New Hampshire, Ohio, and Texas as well as for extreme rural students in Iowa. Declines were noted for advantaged urban students in Hawaii and extreme rural students in Guam.

Two states, Massachusetts and New Hampshire, were estimated to have fewer than 10 percent of their advantaged urban eighth graders below the Basic level, and two jurisdictions, the District of Columbia and Hawaii, had more than 50 percent of the same group estimated to be below Basic. For most states, more than one-half of the disadvantaged urban eighth graders performed below the Basic level. Also, in most states, fewer than half of the extreme rural students performed below the Basic level. Exceptions included Alabama, Arizona, Georgia, Louisiana, Mississippi, North Carolina, West Virginia, Guam, and the Virgin Islands, where an estimated 50 percent or more or the eighth graders did not reach the Basic level. More eighth graders attained the Basic level or beyond in 1992 than in 1990, including advantaged urban students in New Hampshire and Texas, disadvantaged urban students in Oklahoma, and extreme rural students in Iowa, Kentucky, and Louisiana. However, similar to the Proficient level, decreases at the Basic level were noted for advantaged urban eighth graders in Hawaii and extreme rural eighth graders in Guam.

TABLE 2.9 | Average Mathematics Proficiency by Type of Community

PUBLIC SCHOOLS	Grade 4 - 1992							
	Advantaged Urban		Disadvantaged Urban		Extreme Rural		Other	
	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency
NATION	9 (1.8)	240 (3.0)!	10 (1.5)	193 (2.9)	13 (2.4)	216 (3.6)	67 (3.2)	218 (1.0)
Northeast	20 (5.5)	243 (3.3)!	16 (5.5)	206 (3.6)!	4 (1.2)	*** (***)	60 (8.0)	220 (2.4)
Southeast	5 (3.0)	240 (6.4)!	13 (3.5)	190 (4.4)!	19 (6.9)	203 (6.1)!	63 (7.6)	212 (2.0)
Central	5 (2.1)	235(13.4)!	9 (1.9)	188 (4.0)!	16 (3.4)	228 (3.7)!	70 (4.1)	224 (1.5)
West	8 (3.7)	239 (9.1)!	5 (1.3)	180 (7.4)!	13 (4.7)	216 (3.5)!	74 (5.7)	217 (1.9)
STATES								
Alabama	11 (3.1)	231 (5.1)!	13 (3.2)	192 (2.9)!	14 (4.0)	204 (3.8)!	62 (5.6)	208 (2.1)
Arizona	13 (3.9)	230 (3.4)!	10 (3.0)	209 (5.0)!	8 (3.3)	206 (5.0)!	69 (5.5)	212 (2.0)
Arkansas	1 (1.2)	*** (***)	6 (1.5)	195 (2.7)!	25 (4.1)	209 (2.6)	68 (4.7)	210 (1.4)
California	12 (2.5)	232 (2.7)!	23 (3.7)	187 (3.4)	1 (0.3)	*** (***)	65 (4.6)	210 (2.1)
Colorado	18 (3.2)	233 (1.6)	13 (2.9)	203 (2.6)!	13 (2.7)	218 (2.2)!	57 (5.0)	219 (1.5)
Connecticut	19 (4.2)	238 (2.3)!	15 (3.0)	196 (3.8)!	0 (0.0)	*** (***)	66 (5.0)	231 (1.4)
Delaware	10 (0.2)	218 (4.1)	8 (0.2)	207 (4.9)	24 (0.1)	214 (1.0)	58 (0.3)	219 (1.1)
Dist. Columbia	20 (0.3)	212 (1.4)	60 (0.4)	185 (0.9)	0 (0.0)	*** (***)	20 (0.3)	195 (1.6)
Florida	18 (4.4)	231 (2.8)!	21 (3.9)	193 (2.9)	4 (1.3)	207 (6.2)!	57 (4.5)	214 (1.5)
Georgia	10 (3.4)	239 (2.3)!	15 (4.6)	195 (3.1)!	12 (3.6)	215 (2.7)!	63 (6.2)	214 (1.9)
Hawaii	12 (3.6)	227 (3.3)!	9 (1.8)	194 (3.1)!	5 (1.9)	207 (3.8)!	75 (4.3)	214 (1.6)
Idaho	9 (2.6)	235 (2.0)!	1 (0.9)	*** (***)	33 (4.9)	219 (1.2)	56 (5.5)	220 (1.5)
Indiana	8 (2.7)	235 (1.9)!	10 (2.8)	199 (3.4)!	15 (3.3)	223 (1.8)!	68 (4.9)	220 (1.3)
Iowa	7 (2.9)	241 (2.3)!	6 (2.5)	219 (4.6)!	41 (3.5)	229 (1.4)	46 (4.2)	229 (1.9)
Kentucky	6 (2.7)	233 (2.0)!	11 (2.7)	208 (4.1)!	24 (4.2)	215 (1.5)	60 (4.8)	212 (1.6)
Louisiana	5 (2.3)	226 (3.0)!	18 (2.5)	184 (3.9)	11 (2.7)	205 (4.4)!	65 (3.9)	205 (2.0)
Maine	2 (1.6)	*** (***)	2 (1.3)	*** (***)	19 (4.7)	231 (2.8)!	77 (4.9)	231 (1.4)
Maryland	20 (3.6)	231 (3.6)	16 (4.0)	191 (5.7)!	5 (2.1)	222 (3.2)!	59 (4.9)	216 (1.5)
Massachusetts	16 (3.4)	243 (3.0)!	14 (2.7)	200 (2.9)	1 (0.9)	*** (***)	68 (4.2)	229 (1.5)
Michigan	10 (3.0)	240 (3.3)!	15 (3.7)	190 (5.0)!	10 (3.6)	220 (3.3)!	65 (5.1)	224 (1.7)
Minnesota	12 (3.9)	237 (3.3)!	3 (2.2)	*** (***)	29 (3.8)	226 (1.4)	56 (5.4)	226 (1.6)
Mississippi	1 (1.1)	*** (***)	6 (1.9)	190 (3.2)!	11 (2.3)	204 (4.7)	82 (3.2)	200 (1.3)
Missouri	9 (3.0)	239 (4.0)!	11 (2.9)	192 (4.3)!	26 (3.9)	222 (1.7)	53 (5.3)	223 (1.6)
Nebraska	8 (2.7)	238 (2.1)!	6 (1.4)	205 (2.9)!	26 (3.9)	225 (2.8)	59 (4.8)	223 (1.8)
New Hampshire	8 (3.5)	235 (3.0)!	1 (1.3)	*** (***)	4 (1.8)	232 (4.3)!	86 (4.0)	229 (1.4)
New Jersey	30 (4.3)	242 (1.8)	17 (3.3)	196 (4.3)!	1 (1.0)	*** (***)	53 (5.0)	229 (1.7)
New Mexico	11 (5.7)	230 (2.5)!	9 (2.9)	198 (3.6)!	4 (2.0)	203 (6.5)!	77 (6.1)	210 (1.7)
New York	15 (3.7)	231 (2.7)!	24 (3.7)	199 (2.6)	2 (1.6)	*** (***)	58 (4.7)	222 (2.6)
North Carolina	5 (1.6)	233 (1.9)!	4 (1.9)	200 (6.0)!	19 (4.0)	208 (3.0)!	71 (4.6)	211 (1.4)
North Dakota	11 (3.1)	237 (2.6)!	2 (1.4)	*** (***)	43 (3.6)	226 (1.3)	44 (4.3)	226 (1.1)
Ohio	10 (2.6)	237 (2.3)!	18 (2.6)	197 (3.2)	17 (3.9)	216 (2.3)!	55 (4.8)	222 (1.6)
Oklahoma	9 (3.1)	230 (3.9)!	10 (2.6)	213 (3.8)!	21 (3.6)	220 (2.2)	60 (4.6)	219 (1.4)
Pennsylvania	15 (4.9)	237 (4.4)!	17 (3.4)	196 (3.7)	14 (3.8)	230 (1.5)!	54 (5.6)	226 (1.5)
Rhode Island	12 (4.0)	236 (3.0)!	24 (4.9)	192 (3.0)!	0 (0.0)	*** (***)	64 (5.7)	219 (1.9)
South Carolina	6 (2.2)	231 (3.3)!	6 (1.5)	195 (2.6)!	13 (3.1)	205 (2.9)!	74 (4.0)	212 (1.4)
Tennessee	6 (2.7)	228 (4.4)!	13 (3.6)	189 (3.4)!	10 (2.8)	206 (4.3)!	71 (4.6)	212 (1.6)
Texas	10 (3.2)	242 (3.1)!	21 (4.8)	208 (3.9)!	13 (3.3)	223 (2.7)!	56 (6.3)	214 (1.9)
Utah	20 (3.6)	233 (2.0)	3 (1.7)	208 (3.5)!	7 (2.6)	220 (3.2)!	70 (4.4)	222 (1.3)
Virginia	13 (3.1)	235 (3.5)!	14 (3.1)	200 (2.5)!	13 (2.7)	212 (2.3)!	59 (4.7)	220 (2.2)
West Virginia	2 (1.4)	*** (***)	8 (2.5)	209 (3.3)!	16 (3.6)	213 (2.2)!	75 (4.6)	214 (1.4)
Wisconsin	9 (2.6)	242 (4.1)!	7 (2.4)	206 (4.6)!	26 (5.0)	229 (1.8)	58 (5.3)	229 (1.4)
Wyoming	7 (2.1)	232 (3.7)!	4 (1.8)	214 (2.5)!	20 (3.4)	229 (2.1)	69 (4.5)	224 (1.3)
TERRITORY								
Guam	0 (0.0)	*** (***)	0 (0.0)	*** (***)	19 (0.1)	183 (2.3)	81 (0.1)	195 (1.0)

The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. ***Sample size insufficient to permit reliable estimate. There were fewer than 62 students. ! Interpret with caution - the nature of the sample does not allow accurate determination of the variability of this estimated statistic.

TABLE 2.9 | Average Mathematics Proficiency by Type of Community (continued)

PUBLIC SCHOOLS	Grade 8 - 1992							
	Advantaged Urban		Disadvantaged Urban		Extreme Rural		Other	
	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency
NATION	8 (2.2)	285 (4.6)!	9 (1.5)	239 (2.7)	10 (2.8)	267 (4.6)!	72 (3.5)	268 (1.2)
Northeast	12 (6.5)	292 (6.7)!	12 (3.7)	234 (2.3)!	7 (4.8)	*** (***)	69 (8.2)	267 (2.9)
Southeast	5 (3.5)	272 (2.2)!	9 (2.5)	238 (6.9)!	16 (7.2)	255 (4.6)!	69 (7.9)	260 (1.5)
Central	8 (2.4)	285 (7.0)!	9 (3.0)	236 (5.6)!	9 (6.0)	281 (4.3)!	74 (6.9)	275 (1.9)
West	7 (4.0)	284(11.2)!	9 (3.2)	246 (4.6)!	8 (4.0)	264 (5.2)!	76 (5.3)	268 (2.5)
STATES								
Alabama	4 (2.4)	261 (7.4)!	16 (3.5)	237 (4.9)!	15 (3.	254 (1.8)!	65 (4.7)	254 (2.4)
Arizona	15 (5.3)	279 (3.8)!	14 (3.1)	251 (4.0)!	7 (2.	255 (8.7)!	64 (5.8)	264 (1.7)
Arkansas	2 (1.4)	*** (***)	5 (1.9)	236 (6.9)!	16 (3.	261 (2.3)!	76 (4.4)	255 (1.3)
California	8 (3.2)	290 (6.5)!	19 (3.2)	236 (3.5)	3 (1.9	*** (***)	71 (5.1)	264 (1.9)>
Colorado	18 (3.5)	283 (2.0)	10 (2.3)	253 (2.8)!	13 (2.9)	272 (2.9)!	60 (4.9)	272 (1.6)>
Connecticut	10 (3.5)«	283 (4.9)!	17 (3.3)	243 (3.5)	0 (0.0)	*** (***)	72 (4.4)>	279 (1.6)»
Delaware	0 (0.0)	*** (***)	0 (0.0)	*** (***)	11 (0.1)«	263 (2.1)	89 (0.1)»	262 (1.2)
Dist. Columbia	7 (0.3)«	252 (2.9)	67 (0.4)	225 (1.3)	0 (0.0)	*** (***)	25 (0.4)»	252 (2.1)»
Florida	7 (2.9)	271 (5.2)!	17 (3.5)	249 (5.8)!	6 (2.1)	255 (5.5)!	69 (4.9)	261 (2.0)
Georgia	6 (1.9)	274 (5.8)!	10 (2.9)	247 (3.7)!	9 (2.2	246 (1.4)!	74 (4.0)	260 (1.6)
Hawaii	5 (0.1)«	255 (2.6)«	16 (0.4)	240 (2.1)	1 (0.	*** (***)	78 (0.4)»	259 (1.4)»
Idaho	4 (2.2)	288 (3.5)!	5 (2.4)	279 (5.1)!	29 (4.3	274 (1.8)>	62 (5.0)	274 (0.7)
Indiana	5 (2.3)	286 (5.5)!	11 (2.4)	244 (2.0)!	13 (2.6	269 (2.8)	71 (4.3)	273 (1.4)
Iowa	4 (2.3)	291 (7.2)!	3 (1.0)	271 (4.0)!	44 (5.4)	287 (1.5)»	49 (5.7)	280 (1.4)
Kentucky	3 (1.1)	286 (6.2)!>	12 (3.3)	252 (3.4)!	15 (3.7)<	262 (2.4)!>	70 (5.1)>	262 (1.5)
Louisiana	2 (1.6)	*** (***)	19 (3.2)	227 (3.9)	7 (3.0)	254 (3.7)!»	72 (4.3)	253 (1.9)
Maine	1 (1.5)	*** (***)	2 (1.6)	*** (***)	19 (4.1)	276 (1.8)!	78 (4.5)	278 (1.3)
Maryland	21 (3.8)	283 (3.4)	13 (3.5)	240 (7.3)!	3 (2.6)	*** (***)	63 (5.6)	266 (2.5)
Massachusetts	7 (2.3)	300 (4.9)!	23 (3.5)	247 (3.0)	1 (1.3)	*** (***)	69 (4.3)	277 (1.8)
Michigan	7 (3.0)	290 (8.5)!	19 (3.1)	237 (3.4)	14 (3.8)	273 (2.7)!	60 (5.2)	270 (1.5)
Minnesota	7 (3.6)<	290 (6.0)!	0 (0.0)	*** (***)	20 (4.2)	280 (2.1)!	72 (5.2)>	282 (1.4)
Mississippi	3 (1.8)	*** (***)	6 (2.7)	240 (5.4)!	12 (3.1)	245 (4.2)!	79 (4.6)	245 (1.6)
Missouri	7 (2.8)	278 (3.2)!	12 (2.4)	252 (5.1)!	13 (3.6)	270 (2.5)!	68 (4.8)	272 (1.3)
Nebraska	0 (0.0)	*** (***)	6 (0.9)	250 (4.1)	28 (4.3)	281 (2.4)	66 (4.5)>	276 (1.4)>
New Hampshire	4 (1.6)<	294 (2.9)!>	0 (0.0)	*** (***)	5 (2.3	281 (2.1)!	92 (2.8)	277 (1.1)
New Jersey	8 (2.8)«	296 (3.4)!	24 (3.3)	237 (3.3)	3 (2.3)	*** (***)	64 (4.7)	280 (1.5)»
New Mexico	5 (0.2)	282 (2.3)	6 (2.6)	251 (3.1)!	6 (2.8)«	258 (7.3)!	84 (3.8)>	259 (1.1)>
New York	11 (3.3)	292 (3.5)!>	16 (5.1)	230 (4.8)!	10 (3.5)	277 (2.4)!	63 (6.7)	270 (2.8)
North Carolina	3 (1.0)	281(12.8)!	5 (2.2)	243 (5.8)!	12 (3.8)	251 (3.7)!	80 (4.3)	258 (1.5)>
North Dakota	8 (1.8)	286 (2.0)!	0 (0.0)	*** (***)	39 (4.1)	282 (1.8)	53 (3.9)	281 (1.4)
Ohio	6 (2.7)	296 (4.8)!>	17 (3.2)	247 (3.0)	21 (5.5)	277 (2.7)!>	56 (6.3)	269 (2.1)
Oklahoma	2 (1.8)	*** (***)	5 (2.5)	269 (2.7)!»	19 (4.1)	265 (2.4)!	74 (5.1)	269 (1.5)
Pennsylvania	4 (2.1)<	289 (5.5)!	15 (3.5)	245 (5.1)!	13 (3.7)	277 (4.0)!	68 (5.0)	275 (1.3)»
Rhode Island	7 (0.1)«	285 (2.4)>	12 (0.1)<	242 (2.4)	0 (0.0)	*** (***)	81 (0.1)»	268 (0.9)»
South Carolina	3 (1.7)	276 (2.8)!	6 (2.2)	246 (5.7)!	4 (1.8)	270 (2.5)!	87 (3.3)	259 (1.2)
Tennessee	5 (3.3)	279 (2.8)!	7 (2.6)	231 (9.2)!	6 (2.4)	259 (2.1)!	82 (4.0)	259 (1.6)
Texas	10 (2.9)	291 (2.6)!»	18 (3.9)	247 (2.2)!	6 (2.6)	264 (6.5)!	67 (5.5)	264 (1.8)>
Utah	13 (2.4)	283 (2.8)	5 (2.2)	268 (2.6)!	10 (2.4)	270 (1.8)!	72 (3.9)	273 (1.0)
Virginia	9 (2.4)<	284 (3.4)!	13 (3.0)>	250 (3.8)!	14 (4.3)	260 (4.5)!	63 (5.4)	265 (1.6)
West Virginia	1 (0.9)	*** (***)	10 (1.9)	256 (1.8)	13 (3.4)	257 (2.6)!	76 (3.7)	259 (1.2)
Wisconsin	11 (5.5)	291 (5.7)!	5 (1.7)	240 (4.0)!	25 (5.4)	282 (2.5)!	59 (6.4)	277 (1.6)
Wyoming	0 (0.0)	*** (***)	10 (2.6)	273 (5.5)!	13 (2.9)«	276 (2.5)!	76 (3.8)	275 (0.9)
TERRITORIES								
Guam	0 (0.0)	*** (***)	0 (0.0)	*** (***)	11 (0.2)«	216 (3.6)«	89 (0.2)»	237 (1.2)»
Virgin Islands	0 (0.0)	*** (***)	0 (0.0)	*** (***)	27 (0.2)»	215 (2.4)	73 (0.2)«	218 (1.3)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

TABLE 2.9 | Average Mathematics Proficiency by Type of Community (continued)

PUBLIC SCHOOLS	Grade 8 - 1990							
	Advantaged Urban		Disadvantaged Urban		Extreme Rural		Other	
	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency
NATION	10 (3.3)	281 (4.2)!	10 (2.8)	250 (3.8)!	10 (3.0)	256 (4.5)!	70 (4.4)	262 (1.8)
Northeast	23 (7.3)	280 (8.9)!	8 (5.7)	244(12.8)!	14(10.3)	*** (***)	55(11.2)	273 (3.5)
Southeast	0 (0.0)	*** (***)	2 (2.3)	*** (***)	9 (5.3)	251(15.6)!	89 (5.8)	254 (2.8)
Central	3 (3.1)	*** (***)	10 (4.3)	237 (2.6)!	8 (6.0)	*** (***)	79 (7.7)	267 (3.3)
West	14 (8.5)	282 (4.0)!	19 (7.5)	256 (6.5)!	10 (3.8)	251 (9.3)!	58(10.1)	258 (3.4)
STATES								
Alabama	10 (2.8)	267 (4.9)!	12 (3.0)	247 (3.0)!	12 (3.5)	247 (3.6)!	66 (5.3)	253 (1.7)
Arizona	13 (2.7)	274 (2.7)!	16 (4.0)	247 (4.0)!	8 (3.0)	247 (6.9)!	63 (4.7)	259 (2.2)
Arkansas	5 (2.1)	270 (4.0)!	6 (2.1)	239 (4.6)!	24 (3.3)	255 (1.9)	65 (4.4)	258 (1.1)
California	16 (4.5)	278 (3.6)!	18 (4.5)	242 (4.1)!	0 (0.0)	*** (***)	65 (5.9)	256 (1.8)
Colorado	29 (3.9)	280 (1.9)	6 (2.4)	247 (6.1)!	15 (3.0)	268 (2.1)	50 (4.9)	265 (1.5)
Connecticut	33 (3.4)	285 (1.7)	14 (2.4)	239 (3.0)	0 (0.0)	*** (***)	53 (3.7)	269 (1.3)
Delaware	8 (0.1)	282 (1.3)	0 (0.0)	*** (***)	21 (0.2)	259 (1.5)	71 (0.2)	259 (1.1)
Dist. Columbia	17 (0.2)	258 (3.2)	67 (0.2)	225 (0.8)	0 (0.0)	*** (***)	17 (0.1)	234 (2.4)
Florida	15 (3.7)	270 (2.4)!	18 (3.2)	242 (1.6)	8 (1.9)	250 (3.2)!	59 (4.6)	256 (2.1)
Georgia	14 (3.4)	285 (2.5)!	8 (2.5)	247 (4.5)!	18 (3.3)	252 (2.1)	60 (5.0)	257 (1.7)
Hawaii	10 (0.1)	269 (2.6)	16 (0.2)	236 (2.2)	0 (0.0)	*** (***)	74 (0.2)	253 (0.9)
Idaho	4 (0.1)	*** (***)	3 (0.1)	*** (***)	27 (1.9)	269 (1.1)	67 (1.8)	272 (1.1)
Indiana	13 (3.5)	280 (4.0)!	8 (3.0)	244 (6.2)!	17 (2.5)	267 (2.5)	62 (5.3)	269 (1.3)
Iowa	6 (2.1)	294 (5.7)!	4 (2.3)	261 (1.4)!	37 (3.9)	279 (1.5)	53 (4.8)	277 (1.7)
Kentucky	7 (2.2)	269 (2.4)!	10 (2.8)	248 (3.1)!	33 (3.9)	253 (1.8)	49 (5.0)	259 (1.4)
Louisiana	8 (3.1)	267 (4.2)!	23 (4.1)	236 (3.6)	14 (3.3)	237 (2.9)!	54 (5.8)	250 (1.9)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	28 (4.0)	277 (4.0)	18 (3.4)	234 (3.5)!	4 (1.6)	256 (4.9)!	50 (4.4)	261 (2.3)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	17 (3.7)	283 (2.2)!	13 (3.4)	236 (2.9)!	13 (2.5)	267 (2.6)	56 (4.8)	267 (1.7)
Minnesota	24 (3.3)	277 (1.5)	0 (0.0)	*** (***)	29 (4.6)	275 (1.6)	47 (5.3)	278 (1.4)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	9 (0.6)	285 (3.1)	4 (0.1)	*** (***)	39 (3.1)	278 (2.2)	49 (2.9)	271 (1.2)
New Hampshire	8 (0.5)	280 (3.6)	0 (0.0)	*** (***)	3 (0.6)	279 (5.6)!	89 (0.8)	274 (0.9)
New Jersey	30 (4.5)	286 (2.8)	18 (2.5)	236 (2.7)	0 (0.0)	*** (***)	52 (4.8)	270 (1.7)
New Mexico	5 (0.1)	284 (3.8)	7 (0.1)	257 (3.1)	18 (0.9)	253 (1.9)	70 (0.9)	255 (0.9)
New York	15 (3.6)	281 (2.6)!	29 (4.6)	238 (2.7)	3 (1.2)	277 (1.6)!	53 (5.4)	269 (1.6)
North Carolina	4 (2.2)	268 (5.8)!	4 (1.8)	242(10.1)!	17 (3.3)	244 (2.4)	75 (4.3)	251 (1.3)
North Dakota	9 (0.4)	285 (2.4)	3 (0.4)	*** (***)	37 (2.5)	280 (2.5)	50 (2.3)	282 (1.4)
Ohio	14 (3.3)	280 (2.0)!	13 (1.7)	242 (3.4)	10 (2.2)	267 (2.3)!	63 (4.2)	264 (1.2)
Oklahoma	11 (2.9)	280 (2.6)!	9 (2.9)	250 (2.8)!	22 (3.5)	257 (3.1)	59 (5.2)	265 (1.6)
Pennsylvania	12 (2.4)	288 (2.5)!	14 (3.3)	245 (5.5)!	7 (2.7)	268 (3.2)!	67 (4.3)	267 (1.5)
Rhode Island	19 (0.4)	277 (1.7)	17 (1.7)	245 (2.1)	0 (0.0)	*** (***)	63 (1.4)	259 (0.8)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	15 (3.4)	276 (2.9)!	17 (3.8)	246 (2.3)!	9 (2.8)	265 (3.2)!	59 (5.3)	257 (1.9)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	25 (3.9)	283 (3.7)	4 (1.3)	244 (5.0)!	11 (1.7)	248 (2.8)	60 (4.3)	261 (1.8)
West Virginia	0 (0.0)	*** (***)	11 (2.7)	258 (2.0)!	19 (4.0)	255 (1.0)!	70 (4.8)	256 (1.3)
Wisconsin	7 (2.4)	289 (4.2)!	10 (2.2)	244 (3.9)!	24 (3.2)	279 (1.8)	60 (4.1)	276 (1.3)
Wyoming	0 (0.0)	*** (***)	0 (0.0)	*** (***)	27 (0.8)	276 (1.3)	73 (0.8)	272 (0.9)
TERRITORIES								
Guam	0 (0.0)	*** (***)	0 (0.0)	*** (***)	26 (0.1)	235 (1.4)	74 (0.1)	231 (0.9)
Virgin Islands	0 (0.0)	*** (***)	0 (0.0)	*** (***)	19 (0.2)	209 (1.9)	81 (0.2)	221 (0.9)

(xxx) Did not participate in the 1990 Trial State Assessment.

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TABLE 2.10 | Achievement Levels by Type of Community

PUBLIC SCHOOLS	Grade 4 - 1992							
	Percentage of Students At or Above Advanced				Percentage of Students At or Above Proficient			
	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	10 (2.4)!	0 (0.2)	1 (0.5)	2 (0.3)	41 (4.5)!	3 (1.0)	15 (2.3)	17 (1.2)
Northeast	10 (3.4)!	1 (0.3)!	*** (***)	2 (0.7)	44 (5.7)!	6 (2.1)!	*** (***)	21 (3.4)
Southeast	8 (3.7)!	0 (0.3)!	1 (0.7)!	1 (0.4)	40 (8.1)!	3 (1.3)!	8 (3.5)!	11 (1.5)
Central	7 (5.0)!	0 (0.0)!	2 (1.3)!	2 (0.7)	42(13.4)!	1 (0.4)!	22 (4.9)!	21 (2.1)
West	11 (9.2)!	0 (0.0)!	0 (0.0)!	2 (0.5)	36(13.5)!	0 (0.5)!	13 (4.0)!	17 (2.2)
STATES								
Alabama	3 (1.6)!	0 (0.0)!	0 (0.2)!	1 (0.3)	30 (7.0)!	3 (0.9)!	7 (1.9)!	10 (1.5)
Arizona	3 (1.3)!	1 (0.5)!	1 (0.8)!	1 (0.3)	26 (4.1)!	8 (2.6)!	9 (2.4)!	12 (1.5)
Arkansas	*** (***)	0 (0.7)!	0 (0.3)	1 (0.3)	*** (***)	3 (2.1)!	9 (1.8)	11 (1.1)
California	5 (1.7)!	0 (0.2)	*** (***)	2 (0.6)	30 (4.4)!	4 (1.1)	*** (***)	13 (1.3)
Colorado	6 (1.6)	1 (0.4)!	1 (0.9)!	1 (0.4)	31 (2.5)	7 (2.4)!	17 (3.3)!	17 (1.4)
Connecticut	6 (2.0)!	1 (0.5)!	*** (***)	4 (0.8)	36 (3.5)!	5 (2.1)!	*** (***)	28 (2.0)
Delaware	3 (1.5)	0 (0.3)	1 (0.4)	3 (0.7)	20 (4.7)	8 (1.6)	12 (1.5)	20 (1.2)
Dist. Columbia	4 (1.2)	0 (0.1)	*** (***)	2 (0.6)	17 (1.1)	2 (0.3)	*** (***)	8 (0.7)
Florida	5 (1.7)!	0 (0.3)	0 (0.0)!	1 (0.3)	29 (4.1)!	4 (1.2)	8 (7.2)!	13 (1.6)
Georgia	5 (1.9)!	0 (0.2)!	1 (0.9)!	1 (0.3)	37 (5.3)!	4 (1.7)!	14 (2.8)!	15 (1.6)
Hawaii	4 (1.2)!	1 (0.6)!	0 (0.5)!	1 (0.5)	29 (3.3)!	5 (2.5)!	10 (4.1)!	15 (1.3)
Idaho	3 (2.1)!	*** (***)	1 (0.6)	1 (0.4)	29 (4.0)!	*** (***)	15 (1.7)	16 (1.3)
Indiana	4 (1.8)!	0 (0.0)!	1 (0.6)!	2 (0.4)	31 (3.0)!	4 (1.4)!	16 (2.4)!	16 (1.4)
Iowa	9 (2.4)!	1 (1.1)!	2 (0.5)	3 (0.7)	41 (4.4)!	17 (2.7)!	27 (2.0)	27 (2.3)
Kentucky	7 (4.1)!	0 (0.3)!	2 (0.8)	1 (0.4)	33 (3.7)!	9 (3.2)!	12 (1.6)	12 (1.6)
Louisiana	1 (1.2)!	0 (0.3)	0 (0.4)!	0 (0.2)	23 (3.7)!	3 (0.9)	6 (2.1)!	8 (1.0)
Maine	*** (***)	*** (***)	3 (1.8)!	3 (0.7)	*** (***)	*** (***)	28 (3.8)!	28 (2.0)
Maryland	6 (1.5)	0 (0.4)!	3 (2.0)!	2 (0.6)	34 (4.0)	4 (1.8)!	19 (4.2)!	17 (1.7)
Massachusetts	8 (2.4)!	1 (0.5)	*** (***)	3 (0.5)	41 (5.5)!	6 (2.1)	*** (***)	25 (1.8)
Michigan	4 (2.5)!	0 (0.0)!	1 (0.8)!	2 (0.6)	41 (6.0)!	4 (1.9)!	14 (3.5)!	21 (2.0)
Minnesota	6 (2.3)!	*** (***)	2 (0.6)	3 (0.6)	38 (5.3)!	*** (***)	24 (1.8)	26 (1.9)
Mississippi	*** (***)	0 (0.0)!	1 (0.6)	0 (0.2)	*** (***)	0 (0.4)!	7 (2.9)	7 (0.7)
Missouri	6 (2.1)!	0 (0.3)!	2 (0.8)	1 (0.4)	40 (7.9)!	3 (2.1)!	18 (1.7)	20 (2.1)
Nebraska	5 (2.1)!	0 (0.0)!	2 (1.0)	3 (0.8)	39 (3.3)!	11 (4.1)!	21 (3.1)	22 (2.4)
New Hampshire	7 (2.6)!	*** (***)	4 (2.1)!	3 (0.7)	34 (5.2)!	*** (***)	29 (6.3)!	26 (1.9)
New Jersey	6 (1.7)	1 (0.6)!	*** (***)	3 (1.2)	43 (3.6)	5 (2.1)!	*** (***)	24 (1.8)
New Mexico	3 (3.1)!	1 (0.7)!	0 (0.0)!	1 (0.3)	26 (5.3)!	6 (2.1)!	2 (2.9)!	10 (1.5)
New York	5 (1.6)!	0 (0.8)	*** (***)	2 (0.6)	29 (3.4)!	7 (1.8)	*** (***)	19 (2.6)
North Carolina	5 (2.3)!	0 (0.3)!	0 (0.3)!	2 (0.5)	33 (3.9)!	6 (3.0)!	10 (1.8)!	13 (1.2)
North Dakota	5 (1.4)!	*** (***)	2 (0.6)	1 (0.5)	35 (4.1)!	*** (***)	21 (1.9)	22 (1.9)
Ohio	5 (1.7)!	0 (0.5)	1 (0.5)!	2 (0.5)	37 (3.1)!	4 (1.1)	12 (2.1)!	19 (1.8)
Oklahoma	2 (1.8)!	1 (0.7)!	1 (0.8)	1 (0.4)	25 (5.9)!	8 (3.3)!	15 (2.6)	15 (1.7)
Pennsylvania	7 (2.4)!	0 (0.2)	3 (0.7)!	2 (0.8)	38 (5.8)!	5 (1.6)	26 (3.3)!	23 (1.8)
Rhode Island	6 (3.1)!	0 (0.2)!	*** (***)	2 (0.4)	32 (3.8)!	2 (0.8)!	*** (***)	16 (1.7)
South Carolina	4 (1.0)!	0 (0.0)!	1 (0.5)!	1 (0.4)	28 (6.1)!	2 (2.3)!	8 (2.3)!	14 (1.3)
Tennessee	3 (1.3)!	0 (0.0)!	0 (0.6)!	1 (0.3)	25 (4.4)!	2 (1.0)!	7 (1.8)!	10 (1.3)
Texas	7 (4.1)!	1 (0.9)!	2 (1.5)!	1 (0.7)	42 (4.5)!	11 (3.1)!	19 (3.3)!	13 (1.4)
Utah	4 (1.1)	1 (1.3)!	1 (1.1)!	2 (0.4)	32 (3.2)	9 (3.9)!	18 (3.7)!	18 (1.5)
Virginia	5 (2.0)!	0 (0.3)!	1 (0.5)!	3 (0.7)	31 (4.9)!	4 (1.2)!	10 (2.2)!	20 (2.3)
West Virginia	*** (***)	1 (0.8)!	1 (0.5)!	1 (0.4)	*** (***)	12 (4.3)!	11 (2.1)!	13 (1.4)
Wisconsin	10 (3.3)!	1 (0.9)!	2 (0.8)	3 (0.5)	45 (6.1)!	11 (3.5)!	26 (3.1)	26 (1.9)
Wyoming	2 (1.6)!	0 (1.2)!	2 (0.8)	1 (0.4)	32 (4.0)!	8 (3.0)!	24 (2.7)	19 (1.6)
TERRITORY								
Guam	*** (***)	*** (***)	0 (0.4)	0 (0.2)	*** (***)	*** (***)	2 (0.7)	6 (0.7)

The standard errors of the estimated percentages appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. Descriptions of mathematics proficiency at the three achievement levels are found in Chapter One. ***Sample size insufficient to permit reliable estimate. There were fewer than 62 students. ! Interpret with caution - the nature of the sample does not allow accurate determination of the variability of this estimated statistic.

TABLE 2.10 | Achievement Levels by Type of Community (continued)

PUBLIC SCHOOLS	Grade 4 - 1992							
	Percentage of Students At or Above Basic				Percentage of Students Below Basic			
	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	82 (3.2)!	27 (3.3)	60 (5.2)	61 (1.4)	18 (3.2)!	73 (3.3)	40 (5.2)	39 (1.4)
Northeast	83 (3.3)!	40 (5.1)!	*** (***)	64 (3.6)	17 (3.3)!	60 (5.1)!	*** (***)	36 (3.6)
Southeast	84 (7.5)!	24 (6.4)!	41 (7.4)!	52 (3.2)	16 (7.5)!	76 (6.4)!	59 (7.4)!	48 (3.2)
Central	78(17.5)!	22 (5.4)!	78 (7.0)!	68 (2.0)	22(17.5)!	78 (5.4)!	22 (7.0)!	32 (2.0)
West	83 (4.9)!	15 (4.0)!	61 (6.4)!	59 (2.8)	17 (4.9)!	85 (4.0)!	39 (6.4)!	41 (2.8)
STATES								
Alabama	77 (5.9)!	24 (3.5)!	42 (5.2)!	46 (3.1)	23 (5.9)!	76 (3.5)!	58 (5.2)!	54 (3.1)
Arizona	79 (4.0)!	49 (7.8)!	45 (5.9)!	52 (2.8)	21 (4.0)!	51 (7.8)!	55 (5.9)!	48 (2.8)
Arkansas	*** (***)	31 (4.9)!	49 (3.6)	50 (1.9)	*** (***)	69 (4.9)!	51 (3.6)	50 (1.9)
California	76 (3.5)!	27 (3.4)	*** (***)	51 (2.7)	24 (3.5)!	73 (3.4)	*** (***)	49 (2.7)
Colorado	76 (2.2)	42 (3.2)!	61 (2.9)!	63 (2.2)	24 (2.2)	58 (3.2)!	39 (2.9)!	37 (2.2)
Connecticut	85 (2.9)!	28 (5.5)!	*** (***)	77 (1.9)	15 (2.9)!	72 (5.5)!	*** (***)	23 (1.9)
Delaware	57 (4.7)	48 (6.9)	53 (2.0)	59 (1.6)	43 (4.7)	52 (6.9)	47 (2.0)	41 (1.6)
Dist. Columbia	49 (2.9)	18 (1.4)	*** (***)	30 (2.5)	51 (2.9)	82 (1.4)	*** (***)	70 (2.5)
Florida	76 (3.1)!	31 (3.1)	48 (6.7)!	56 (2.2)	24 (3.1)!	69 (3.1)	52 (6.7)!	44 (2.2)
Georgia	87 (3.0)!	32 (5.2)!	55 (5.0)!	55 (2.6)	13 (3.0)!	68 (5.2)!	45 (5.0)!	45 (2.6)
Hawaii	70 (4.2)!	32 (3.3)!	47 (4.3)!	54 (2.1)	30 (4.2)!	68 (3.3)!	53 (4.3)!	46 (2.1)
Idaho	84 (2.4)!	*** (***)	61 (2.4)	64 (2.3)	16 (2.4)!	*** (***)	39 (2.4)	36 (2.3)
Indiana	81 (3.3)!	31 (5.4)!	67 (3.1)!	63 (2.2)	19 (3.3)!	69 (5.4)!	33 (3.1)!	37 (2.2)
Iowa	86 (2.5)!	63 (6.1)!	73 (1.8)	75 (2.6)	14 (2.5)!	37 (6.1)!	27 (1.8)	25 (2.6)
Kentucky	76 (6.9)!	46 (6.3)!	54 (2.4)	51 (2.2)	24 (6.9)!	54 (6.3)!	46 (2.4)	49 (2.2)
Louisiana	71 (4.6)!	20 (3.8)	43 (6.8)!	43 (2.8)	29 (4.6)!	80 (3.8)	57 (6.8)!	57 (2.8)
Maine	*** (***)	*** (***)	76 (3.2)!	77 (1.9)	*** (***)	*** (***)	24 (3.2)!	23 (1.9)
Maryland	74 (4.3)	28 (6.2)!	63 (4.3)!	56 (2.1)	26 (4.3)	72 (6.2)!	37 (4.3)!	44 (2.1)
Massachusetts	88 (3.5)!	36 (4.0)	*** (***)	75 (2.1)	12 (3.5)!	64 (4.0)	*** (***)	25 (2.1)
Michigan	88 (1.9)!	26 (5.3)!	65 (5.4)!	69 (2.2)	12 (1.9)!	74 (5.3)!	35 (5.4)!	31 (2.2)
Minnesota	81 (5.5)!	*** (***)	71 (2.5)	70 (2.4)	19 (5.5)!	*** (***)	29 (2.5)	30 (2.4)
Mississippi	*** (***)	28 (5.4)!	43 (5.2)	37 (1.8)	*** (***)	72 (5.4)!	57 (5.2)	63 (1.8)
Missouri	82 (3.7)!	29 (5.2)!	66 (3.0)	66 (2.1)	18 (3.7)!	71 (5.2)!	34 (3.0)	34 (2.1)
Nebraska	85 (3.9)!	44 (4.5)!	69 (4.3)	67 (2.4)	15 (3.9)!	56 (4.5)!	31 (4.3)	33 (2.4)
New Hampshire	80 (4.6)!	*** (***)	79 (7.2)!	74 (1.9)	20 (4.6)!	*** (***)	21 (7.2)!	26 (1.9)
New Jersey	88 (1.8)	31 (6.3)!	*** (***)	74 (2.7)	12 (1.8)	69 (6.3)!	*** (***)	26 (2.7)
New Mexico	74 (3.9)!	36 (6.2)!	43(14.8)!	50 (2.4)	26 (3.9)!	64 (6.2)!	57(14.8)!	50 (2.4)
New York	75 (3.4)!	35 (3.6)	*** (***)	65 (3.4)	25 (3.4)!	65 (3.6)	*** (***)	35 (3.4)
North Carolina	80 (3.0)!	42 (5.7)!	50 (4.5)!	51 (2.0)	20 (3.0)!	58 (5.7)!	50 (4.5)!	49 (2.0)
North Dakota	83 (2.8)!	*** (***)	73 (1.5)	72 (1.9)	17 (2.8)!	*** (***)	27 (1.5)	28 (1.9)
Ohio	82 (4.0)!	30 (3.9)	59 (4.0)!	65 (2.5)	18 (4.0)!	70 (3.9)	41 (4.0)!	35 (2.5)
Oklahoma	75 (6.7)!	54 (5.3)!	63 (3.7)	62 (2.4)	25 (6.7)!	46 (5.3)!	37 (3.7)	38 (2.4)
Pennsylvania	82 (4.5)!	32 (5.0)	77 (2.6)!	70 (2.2)	18 (4.5)!	68 (5.0)	23 (2.6)!	30 (2.2)
Rhode Island	81 (2.5)!	26 (4.0)!	*** (***)	63 (2.8)	19 (2.5)!	74 (4.0)!	*** (***)	37 (2.8)
South Carolina	73 (3.7)!	25 (4.6)!	39 (4.2)!	51 (1.8)	27 (3.7)!	75 (4.6)!	61 (4.2)!	49 (1.8)
Tennessee	74 (7.9)!	23 (4.2)!	44 (4.9)!	52 (2.6)	26 (7.9)!	77 (4.2)!	56 (4.9)!	48 (2.6)
Texas	89 (2.6)!	44 (6.3)!	66 (4.3)!	55 (2.4)	11 (2.6)!	56 (6.3)!	34 (4.3)!	45 (2.4)
Utah	79 (2.9)	46 (6.2)!	65 (4.9)!	67 (2.0)	21 (2.9)	54 (6.2)!	35 (4.9)!	33 (2.0)
Virginia	81 (4.0)!	37 (4.2)!	53 (4.1)!	60 (2.7)	19 (4.0)!	63 (4.2)!	47 (4.1)!	40 (2.7)
West Virginia	*** (***)	44 (5.6)!	54 (3.0)!	54 (2.1)	*** (***)	56 (5.6)!	46 (3.0)!	46 (2.1)
Wisconsin	84 (4.2)!	46 (4.8)!	75 (2.5)	75 (1.8)	16 (4.2)!	54 (4.8)!	25 (2.5)	25 (1.8)
Wyoming	77 (4.8)!	55 (6.5)!	78 (3.2)	69 (2.2)	23 (4.8)!	45 (6.5)!	22 (3.2)	31 (2.2)
TERRITORY								
Guam	*** (***)	*** (***)	19 (2.4)	32 (1.5)	*** (***)	*** (***)	81 (2.4)	68 (1.5)

TABLE 2.10 | Achievement Levels by Type of Community (continued)

PUBLIC SCHOOLS	Grade 8 - 1992							
	Percentage of Students At or Above Advanced				Percentage of Students At or Above Proficient			
	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	9 (3.1)!	1 (0.4)	2 (1.0)!	3 (0.5)	44 (5.6)!	7 (1.5)	21 (3.8)!	24 (1.2)
Northeast	13 (5.2)!	0 (0.3)!	*** (***)	5 (1.3)	50 (9.5)!	3 (1.6)!	*** (***)	25 (3.4)
Southeast	5 (1.7)!	1 (0.7)!	1 (1.2)!	1 (0.5)	29 (2.2)!	6 (3.3)!	12 (3.4)!	18 (1.3)
Central	5 (5.0)!	1 (0.6)!	3 (1.9)!	3 (0.7)	45(13.4)!	6 (3.5)!	31 (5.1)!	29 (2.7)
West	12 (6.6)!	1 (0.8)!	0 (0.6)!	4 (1.1)	44(11.8)!	12 (2.7)!	22 (5.6)!	24 (2.4)
STATES								
Alabama	2 (1.9)!	1 (0.5)!	0 (0.2)!	1 (0.5)	16 (8.3)!	7 (3.1)!	11 (1.7)!	14 (1.6)
Arizona	5 (1.8)!	0 (0.6)!	0 (0.0)!	1 (0.5)	31 (5.6)!	8 (1.9)!	16 (4.9)!	18 (1.9)
Arkansas	*** (***)	0 (0.0)!	1 (0.6)!	1 (0.3)	*** (***)	5 (2.2)!	13 (2.2)!	13 (1.1)
California	13 (6.6)!	0 (0.3)	*** (***)	2 (0.6)	46 (6.6)!	5 (1.6)	*** (***)	21 (1.6) >
Colorado	3 (1.4)	1 (0.9)!	2 (1.1)!	3 (0.6)	37 (3.1)	14 (2.5)!	24 (3.5)!	26 (1.9)
Connecticut	9 (2.9)!	1 (0.7)	*** (***)	4 (0.9)	43 (6.9)!	7 (1.8)	*** (***)	33 (1.8)»
Delaware	*** (***)	*** (***)	2 (0.8)	3 (0.5)	*** (***)	*** (***)	18 (2.4)	19 (1.2)
Dist. Columbia	1 (1.2) <	0 (0.0)	*** (***)	3 (1.1)	12 (2.8)	1 (0.6)	*** (***)	16 (4.2) >
Florida	6 (2.2)!	1 (0.6)!	1 (1.1)!	2 (0.6)	26 (4.8)!	13 (3.7)!	13 (4.0)!	18 (1.6)
Georgia	5 (2.6)!	0 (0.3)!	0 (0.3)!	1 (0.4)	28 (3.5)!	8 (1.9)!	8 (3.7)!	17 (1.5)
Hawaii	2 (1.8)	1 (0.9)	*** (***)	2 (0.4)	15 (2.3) <	9 (1.9)	*** (***)	17 (1.3)
Idaho	7 (4.1)!	2 (2.8)!	2 (1.0)	2 (0.5)	44 (9.2)!	32 (8.0)!	25 (2.7)	27 (1.4)
Indiana	7 (2.3)!	0 (0.4)!	2 (0.7)	3 (0.6)	41 (5.8)!	6 (1.8)!	22 (3.5)	26 (1.8)
Iowa	6 (5.1)!	4 (3.0)!	5 (1.3)	4 (0.9)	49 (8.9)!	24 (9.4)!	41 (2.3) >	34 (2.1)
Kentucky	10 (2.8)!	0 (0.0)!	1 (0.4)!	2 (0.5)	45 (7.0)!	12 (2.7)!	16 (2.5)!	17 (1.4)
Louisiana	*** (***)	0 (0.3)	1 (0.5)!	1 (0.2)	*** (***)	2 (1.0)	8 (3.2)!	11 (1.3)
Maine	*** (***)	*** (***)	3 (1.2)!	4 (0.8)	*** (***)	*** (***)	27 (2.5)!	32 (2.4)
Maryland	10 (2.5)	1 (0.2)! >	*** (***)	4 (1.0)	40 (4.0)	9 (2.8)!	*** (***)	25 (2.6)
Massachusetts	14 (3.6)!	0 (0.1)	*** (***)	3 (0.6)	62 (6.6)!	7 (2.2)	*** (***)	31 (2.0)
Michigan	10 (3.4)!	1 (0.3)	2 (1.0)!	2 (0.6)	51(10.2)!	6 (2.0)	23 (3.2)!	24 (2.0)
Minnesota	9 (3.7)!	*** (***)	4 (1.0)!	6 (0.9)	48 (8.7)!	*** (***)	34 (2.7)!	37 (1.8)
Mississippi	*** (***)	0 (0.5)!	0 (0.4)!	0 (0.2)	*** (***)	5 (1.5)!	7 (1.9)!	8 (0.9)
Missouri	6 (3.0)!	2 (1.0)!	1 (0.5)!	3 (0.5)	38 (5.3)!	12 (2.4)!	21 (4.1)!	24 (1.6)
Nebraska	*** (***)	1 (1.2)	4 (1.4)	3 (0.6)	*** (***)	15 (4.2)	36 (4.2)	30 (2.2)
New Hampshire	9 (5.9)!	*** (***)	2 (2.3)!	3 (0.7)	53 (3.8)! >	*** (***)	37 (6.2)!	29 (1.4)
New Jersey	11 (4.3)!	0 (0.2)	*** (***)	5 (0.8)	53 (5.3)!	2 (1.2)	*** (***)	33 (2.0) >
New Mexico	3 (1.4)	0 (0.4)!	0 (0.0)!	1 (0.4)	32 (8.4)	6 (2.3)!	10 (3.9)!	14 (1.2)
New York	11 (2.8)!	0 (0.6)!	3 (1.4)!	3 (0.8)	47 (5.6)!	3 (1.8)!	28 (2.2)!	25 (2.5)
North Carolina	7 (7.2)!	1 (0.8)!	1 (0.9)!	1 (0.3)	39(12.9)!	6 (2.2)!	12 (1.9)!	15 (1.2)
North Dakota	3 (2.3)!	*** (***)	3 (0.8)	5 (0.9)	40 (2.4)!	*** (***)	35 (3.0)	33 (2.0)
Ohio	9 (3.7)!	0 (0.4)	2 (1.2)!	2 (0.6)	58 (8.3)! >	8 (2.2)	26 (2.4)!	22 (1.8)
Oklahoma	*** (***)	1 (2.7)!	1 (0.6)!	2 (0.4)	*** (***)	18 (6.0)!	17 (2.8)!	23 (1.7)
Pennsylvania	11 (1.8)!	1 (0.8)!	4 (1.8)!	3 (0.9)	47(11.7)!	9 (2.8)!	29 (5.7)!	29 (1.8) >
Rhode Island	6 (2.9)	1 (1.0)	*** (***)	1 (0.3)	39 (4.6)	7 (3.1)	*** (***)	20 (1.7)
South Carolina	3 (2.2)!	1 (0.8)!	2 (1.0)!	2 (0.6)	26 (3.7)!	8 (4.2)!	24 (2.6)!	18 (1.3)
Tennessee	5 (3.2)!	0 (0.9)!	0 (0.3)!	1 (0.5)	34 (6.4)!	4 (3.8)!	12 (2.2)!	15 (1.4)
Texas	14 (2.4)! >	1 (0.4)!	3 (1.8)!	2 (0.7)	45 (3.4)! >	7 (1.6)!	23 (6.3)!	21 (2.0)
Utah	4 (1.6)	2 (1.2)!	2 (1.2)!	3 (0.6)	37 (3.8)	21 (4.8)!	26 (4.6)!	26 (1.4)
Virginia	6 (2.5)!	1 (0.6)!	1 (0.9)!	2 (0.5)	39 (4.0)!	10 (3.2)!	14 (3.0)!	20 (1.8)
West Virginia	*** (***)	0 (0.5)	1 (0.8)!	1 (0.2)	*** (***)	10 (2.4)	12 (2.0)!	13 (1.2)
Wisconsin	8 (3.5)!	0 (0.0)!	4 (2.2)!	4 (0.7)	47 (5.8)!	6 (1.7)!	33 (2.3)!	32 (1.8)
Wyoming	*** (***)	4 (2.9)!	3 (1.2)!	2 (0.5)	*** (***)	23 (6.8)!	27 (3.3)!	26 (1.2)
TERRITORIES								
Guam	*** (***)	*** (***)	0 (0.0)	1 (0.2)	*** (***)	*** (***)	1 (0.5)«	8 (0.8) >
Virgin Islands	*** (***)	*** (***)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	0 (0.6)	0 (0.3)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

TABLE 2.10 | Achievement Levels by Type of Community (continued)

PUBLIC SCHOOLS	Grade 8 - 1992							
	Percentage of Students At or Above Basic				Percentage of Students Below Basic			
	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	79 (3.7)!	28 (3.2)	65 (6.2)!	63 (1.6)	21 (3.7)!	72 (3.2)	35 (6.2)!	37 (1.6)
Northeast	84 (4.4)!	20 (4.6)!	*** (***)	59 (3.6)	16 (4.4)!	80 (4.6)!	*** (***)	41 (3.6)
Southeast	66 (2.5)!	28 (7.1)!	50 (7.3)!	56 (2.2)	34 (2.5)!	72 (7.1)!	50 (7.3)!	44 (2.2)
Central	81 (4.0)!	25 (8.0)!	80 (6.8)!	72 (2.9)	19 (4.0)!	75 (8.0)!	20 (6.8)!	28 (2.9)
West	78 (8.1)!	39 (5.0)!	61 (5.3)!	63 (3.4)	22 (8.1)!	61 (5.0)!	39 (5.3)!	37 (3.4)
STATES								
Alabama	57 (6.1)!	26 (5.3)!	48 (3.4)!	47 (2.7)	43 (6.1)!	74 (5.3)!	52 (3.4)!	53 (2.7)
Arizona	79 (4.5)!	46 (6.1)!	50(10.8)!	60 (2.2)	21 (4.5)!	54 (6.1)!	50(10.8)!	40 (2.2)
Arkansas	*** (***)	30 (7.4)!	57 (4.4)!	50 (1.7)	*** (***)	70 (7.4)!	43 (4.4)!	50 (1.7)
California	84 (4.1)!	30 (3.8)	*** (***)	59 (2.6)	16 (4.1)!	70 (3.8)	*** (***)	41 (2.6)
Colorado	83 (2.4)	47 (3.7)!	72 (3.2)!	69 (2.0)	17 (2.4)	53 (3.7)!	28 (3.2)!	31 (2.0)
Connecticut	75 (5.0)!	34 (3.8)	*** (***)	76 (1.8) >	25 (5.0)!	66 (3.8)	*** (***)	24 (1.8) <
Delaware	*** (***)	*** (***)	61 (3.1)	56 (1.4)	*** (***)	*** (***)	39 (3.1)	44 (1.4)
Dist. Columbia	44 (5.8)	16 (2.1)	*** (***)	44 (2.2) »	56 (5.8)	84 (2.1)	*** (***)	56 (2.2) «
Florida	64 (5.4)!	43 (5.6)!	56 (7.1)!	56 (2.4)	36 (5.4)!	57 (5.6)!	44 (7.1)!	44 (2.4)
Georgia	70 (8.4)!	40 (5.7)!	40 (2.9)!	55 (1.9)	30 (8.4)!	60 (5.7)!	60 (2.9)!	45 (1.9)
Hawaii	47 (4.4) <	33 (2.9)	*** (***)	55 (1.8) >	53 (4.4) >	67 (2.9)	*** (***)	45 (1.8) <
Idaho	87 (3.9)!	79 (5.8)!	74 (2.2)	73 (1.3)	13 (3.9)!	21 (5.8)!	26 (2.2)	27 (1.3)
Indiana	83 (5.2)!	35 (3.1)!	65 (4.1)	70 (1.8)	17 (5.2)!	65 (3.1)!	35 (4.1)	30 (1.8)
Iowa	90 (3.5)!	68 (4.3)!	87 (1.8) >	78 (1.8)	10 (3.5)!	32 (4.3)!	13 (1.8) <	22 (1.8)
Kentucky	80 (5.9)!	45 (4.2)!	61 (3.2)! >	58 (1.9)	20 (5.9)!	55 (4.2)!	39 (3.2)! <	42 (1.9)
Louisiana	*** (***)	20 (3.8)	48 (5.8)! >	46 (2.4)	*** (***)	80 (3.8)	52 (5.8)! <	54 (2.4)
Maine	*** (***)	*** (***)	77 (3.1)!	77 (1.5)	*** (***)	*** (***)	23 (3.1)!	23 (1.5)
Maryland	78 (3.9)	32 (8.3)!	*** (***)	61 (2.6)	22 (3.9)	68 (8.3)!	*** (***)	39 (2.6)
Massachusetts	92 (4.3)!	38 (4.4)	*** (***)	75 (2.3)	8 (4.3)!	62 (4.4)	*** (***)	25 (2.3)
Michigan	82 (7.5)!	30 (4.6)	74 (3.9)!	67 (2.0)	18 (7.5)!	70 (4.6)	26 (3.9)!	33 (2.0)
Minnesota	84 (6.1)!	*** (***)	79 (2.8)!	78 (1.7)	16 (6.1)!	*** (***)	21 (2.8)!	22 (1.7)
Mississippi	*** (***)	31 (8.0)!	36 (5.5)!	38 (1.9)	*** (***)	69 (8.0)!	64 (5.5)!	62 (1.9)
Missouri	70 (4.6)!	45 (6.4)!	70 (3.2)!	71 (1.8)	30 (4.6)!	55 (6.4)!	30 (3.2)!	29 (1.8)
Nebraska	*** (***)	43 (5.9)	79 (2.6)	75 (1.6)	*** (***)	57 (5.9)	21 (2.6)	25 (1.6)
New Hampshire	93 (4.1)! >	*** (***)	82 (5.5)!	76 (1.3)	7 (4.1)! <	*** (***)	18 (5.5)!	24 (1.3)
New Jersey	90 (2.8)!	27 (4.0)	*** (***)	78 (1.8) >	10 (2.8)!	73 (4.0)	*** (***)	22 (1.8) <
New Mexico	83 (4.2)	48 (5.5)!	56(10.8)!	54 (1.7)	17 (4.2)	52 (5.5)!	44(10.8)!	46 (1.7)
New York	87 (2.6)!	24 (4.6)!	76 (3.0)!	67 (3.4)	13 (2.6)!	76 (4.6)!	24 (3.0)!	33 (3.4)
North Carolina	74(12.3)!	35 (7.0)!	47 (4.5)!	53 (1.7) >	26(12.3)!	65 (7.0)!	53 (4.5)!	47 (1.7) <
North Dakota	88 (3.5)!	*** (***)	82 (2.3)	81 (1.8)	12 (3.5)!	*** (***)	18 (2.3)	19 (1.8)
Ohio	90 (3.4)!	39 (3.8)	78 (5.4)!	67 (2.8)	10 (3.4)!	61 (3.8)	22 (5.4)!	33 (2.8)
Oklahoma	*** (***)	68 (6.2)! >	64 (3.6)!	67 (2.4)	*** (***)	32 (6.2)! <	36 (3.6)!	33 (2.4)
Pennsylvania	82 (6.7)!	36 (6.2)!	74 (4.0)!	73 (1.5) >	18 (6.7)!	64 (6.2)!	26 (4.0)!	27 (1.5) <
Rhode Island	79 (2.5)	35 (2.9)	*** (***)	67 (1.4) »	21 (2.5)	65 (2.9)	*** (***)	33 (1.4) «
South Carolina	79 (6.9)!	37 (6.0)!	63 (4.3)!	53 (1.5)	21 (6.9)!	63 (6.0)!	37 (4.3)!	47 (1.5)
Tennessee	74 (4.7)!	22(11.6)!	58 (3.3)!	54 (2.1)	26 (4.7)!	78(11.6)!	42 (3.3)!	46 (2.1)
Texas	85 (2.5)! >	39 (3.5)!	57 (9.2)!	59 (2.2)	15 (2.5)! <	61 (3.5)!	43 (9.2)!	41 (2.2)
Utah	81 (3.5)	67 (4.3)!	68 (3.2)!	72 (1.9)	19 (3.5)	33 (4.3)!	32 (3.2)!	28 (1.9)
Virginia	82 (4.4)!	43 (5.3)!	56 (5.8)!	61 (2.2)	18 (4.4)!	57 (5.3)!	44 (5.8)!	39 (2.2)
West Virginia	*** (***)	52 (3.2)	50 (3.8)!	53 (1.8)	*** (***)	48 (3.2)	50 (3.8)!	47 (1.8)
Wisconsin	89 (5.4)!	33 (4.5)!	83 (3.8)!	75 (1.8)	11 (5.4)!	67 (4.5)!	17 (3.8)!	25 (1.8)
Wyoming	*** (***)	70 (5.9)!	76 (3.7)!	74 (1.3)	*** (***)	30 (5.9)!	24 (3.7)!	26 (1.3)
TERRITORIES								
Guam	*** (***)	*** (***)	15 (3.0) «	32 (1.6) >	*** (***)	*** (***)	85 (3.0) »	68 (1.6) <
Virgin Islands	*** (***)	*** (***)	11 (2.5)	10 (1.1)	*** (***)	*** (***)	89 (2.5)	90 (1.1)

TABLE 2.10 | Achievement Levels by Type of Community (continued)

PUBLIC SCHOOLS	Grade 8 - 1990							
	Percentage of Students At or Above Advanced				Percentage of Students At or Above Proficient			
	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	6 (2.5)!	1 (0.7)!	1 (0.7)!	2 (0.4)	36 (4.2)!	12 (3.5)!	13 (3.6)!	19 (1.3)
Northeast	5 (4.6)!	0 (1.0)!	*** (***)	4 (1.1)	34 (8.5)!	11(14.0)!	*** (***)	28 (3.5)
Southeast	*** (***)	*** (***)	0 (0.8)!	2 (0.7)	*** (***)	*** (***)	15 (7.4)!	15 (2.4)
Central	*** (***)	0 (0.0)!	*** (***)	2 (0.7)	*** (***)	2 (1.3)!	*** (***)	22 (2.4)
West	7 (4.5)!	2 (1.3)!	1 (1.1)!	2 (0.7)	39 (5.4)!	15 (5.7)!	11 (7.4)!	16 (2.1)
STATES								
Alabama	4 (1.6)!	1 (0.6)!	0 (0.2)!	1 (0.3)	25 (4.1)!	9 (2.1)!	8 (2.6)!	11 (1.1)
Arizona	3 (1.8)!	0 (0.6)!	0 (0.7)!	2 (0.5)	25 (4.9)!	8 (2.6)!	9 (3.8)!	15 (1.7)
Arkansas	3 (1.1)!	0 (0.8)!	1 (0.4)	1 (0.3)	27 (4.8)!	5 (2.3)!	9 (1.7)	14 (1.1)
California	5 (1.7)!	0 (0.3)!	*** (***)	2 (0.5)	32 (5.3)!	7 (2.2)!	*** (***)	15 (1.4)
Colorado	5 (1.2)	1 (0.5)!	1 (0.5)	1 (0.5)	33 (2.6)	6 (3.2)!	19 (2.4)	19 (1.4)
Connecticut	7 (1.1)	0 (0.7)	*** (***)	3 (0.5)	40 (2.3)	5 (1.6)	*** (***)	23 (1.4)
Delaware	7 (2.9)	*** (***)	1 (0.4)	2 (0.6)	42 (3.0)	*** (***)	15 (1.4)	17 (1.2)
Dist. Columbia	5 (0.9)	0 (0.1)	*** (***)	0 (0.4)	16 (3.2)	2 (0.5)	*** (***)	2 (1.0)
Florida	3 (1.2)!	1 (0.4)	0 (0.0)!	2 (0.7)	23 (2.3)!	6 (1.7)	10 (2.0)!	16 (1.5)
Georgia	10 (2.4)!	0 (0.4)!	2 (0.5)	2 (0.5)	41 (4.1)!	6 (1.8)!	12 (1.9)	15 (1.4)
Hawaii	3 (1.4)	0 (0.3)	*** (***)	2 (0.5)	27 (3.2)	6 (1.8)	*** (***)	15 (1.0)
Idaho	*** (***)	*** (***)	1 (0.5)	2 (0.4)	*** (***)	*** (***)	20 (1.5)	24 (1.9)
Indiana	8 (3.1)!	1 (0.8)!	2 (0.9)	3 (0.6)	33 (5.3)!	6 (2.6)!	17 (2.5)	21 (1.5)
Iowa	12 (2.8)!	0 (1.0)!	4 (0.9)	3 (0.6)	49 (8.1)!	16 (1.9)!	30 (2.2)	29 (2.3)
Kentucky	3 (1.7)!	1 (0.4)!	0 (0.3)	2 (0.4)	26 (3.9)!	10 (3.1)!	10 (1.2)	14 (1.3)
Louisiana	5 (1.2)!	0 (0.2)	0 (0.0)!	0 (0.2)	23 (4.0)!	4 (1.4)	3 (1.1)!	8 (1.4)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	8 (1.6)	0 (0.1)!	0 (1.3)!	2 (0.9)	34 (3.3)	5 (1.4)!	11 (2.3)!	19 (2.1)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	7 (1.7)!	0 (0.0)!	2 (0.9)	2 (0.5)	35 (4.0)!	3 (1.9)!	19 (4.1)	20 (2.0)
Minnesota	5 (1.0)	*** (***)	3 (0.9)	4 (0.6)	30 (3.1)	*** (***)	28 (2.9)	31 (1.7)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	6 (2.6)	*** (***)	3 (0.9)	3 (0.7)	40 (6.7)	*** (***)	32 (3.0)	25 (1.6)
New Hampshire	8 (3.8)	*** (***)	6 (2.0)!	3 (0.4)	35 (4.7)	*** (***)	34 (6.4)!	25 (1.3)
New Jersey	8 (1.7)	0 (0.2)	*** (***)	3 (0.7)	40 (4.7)	4 (1.0)	*** (***)	23 (2.0)
New Mexico	4 (2.9)	1 (0.7)	0 (0.4)	1 (0.4)	37 (8.6)	13 (4.3)	9 (2.0)	12 (1.1)
New York	7 (1.6)!	1 (0.5)	6 (3.5)!	3 (0.7)	34 (3.7)!	8 (1.7)	28 (3.2)!	21 (1.5)
North Carolina	3 (2.2)!	0 (0.5)!	0 (0.2)	1 (0.4)	29 (4.4)!	9 (4.8)!	6 (1.6)	11 (0.9)
North Dakota	5 (0.9)	*** (***)	3 (0.9)	4 (1.0)	38 (4.7)	*** (***)	34 (3.7)	33 (2.3)
Ohio	4 (1.5)!	0 (0.6)	1 (0.7)!	2 (0.4)	32 (2.9)!	8 (1.7)	17 (3.0)!	18 (1.3)
Oklahoma	2 (1.5)!	0 (0.4)!	1 (0.5)	2 (0.8)	35 (4.0)!	7 (3.6)!	12 (3.2)	17 (1.5)
Pennsylvania	8 (1.8)!	1 (0.7)!	1 (0.8)!	2 (0.5)	43 (3.4)!	9 (2.8)!	20 (4.3)!	20 (1.8)
Rhode Island	4 (1.1)	1 (0.9)	*** (***)	1 (0.4)	32 (2.4)	10 (2.0)	*** (***)	16 (1.1)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	5 (1.6)!	1 (0.5)!	2 (1.3)!	1 (0.4)	29 (3.7)!	8 (1.6)!	17 (2.2)!	15 (1.6)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	10 (2.6)	0 (0.4)!	1 (0.8)	3 (0.5)	37 (4.7)	8 (5.3)!	10 (2.8)	17 (1.9)
West Virginia	*** (***)	1 (0.6)!	1 (0.4)!	1 (0.3)	*** (***)	10 (1.6)!	11 (1.5)!	13 (1.0)
Wisconsin	7 (2.8)!	1 (0.8)!	2 (0.7)	4 (0.7)	45 (7.3)!	7 (1.6)!	30 (2.2)	31 (2.0)
Wyoming	*** (***)	*** (***)	2 (0.6)	2 (0.4)	*** (***)	*** (***)	26 (2.4)	24 (1.2)
TERRITORIES								
Guam	*** (***)	*** (***)	1 (0.5)	0 (0.2)	*** (***)	*** (***)	7 (1.1)	5 (0.7)
Virgin Islands	*** (***)	*** (***)	0 (0.0)	0 (0.1)	*** (***)	*** (***)	0 (0.4)	1 (0.5)

(xxx) Did not participate in the 1990 Trial State Assessment.

TABLE 2.10 | Achievement Levels by Type of Community (continued)

PUBLIC SCHOOLS	Grade 8 - 1990							
	Percentage of Students At or Above Basic				Percentage of Students Below Basic			
	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	78 (4.3)!	43 (4.2)!	50 (5.7)!	58 (2.0)	22 (4.3)!	57 (4.2)!	50 (5.7)!	42 (2.0)
Northeast	78 (8.9)!	35 (7.9)!	*** (***)	69 (4.0)	22 (8.9)!	65 (7.9)!	*** (***)	31 (4.0)
Southeast	*** (***)	*** (***)	45(15.0)!	49 (3.5)	*** (***)	*** (***)	55(15.0)!	51 (3.5)
Central	*** (***)	27 (2.9)!	*** (***)	64 (3.7)	*** (***)	73 (2.9)!	*** (***)	36 (3.7)
West	77 (3.2)!	51 (7.5)!	45(11.6)!	55 (3.9)	23 (3.2)!	49 (7.5)!	55(11.6)!	45 (3.9)
STATES								
Alabama	63 (5.6)!	39 (4.7)!	43 (5.1)!	47 (2.1)	37 (5.6)!	61 (4.7)!	57 (5.1)!	53 (2.1)
Arizona	72 (2.7)!	40 (5.4)!	41(10.4)!	54 (2.8)	28 (2.7)!	60 (5.4)!	59(10.4)!	46 (2.8)
Arkansas	66 (4.7)!	31 (5.1)!	50 (2.8)	53 (1.8)	34 (4.7)!	69 (5.1)!	50 (2.8)	47 (1.8)
California	75 (3.9)!	34 (5.8)!	*** (***)	50 (2.3)	25 (3.9)!	66 (5.8)!	*** (***)	50 (2.3)
Colorado	78 (2.4)	39 (5.8)!	68 (3.7)	61 (2.1)	22 (2.4)	61 (5.8)!	32 (3.7)	39 (2.1)
Connecticut	81 (2.0)	31 (4.3)	*** (***)	67 (2.0)	19 (2.0)	69 (4.3)	*** (***)	33 (2.0)
Delaware	75 (1.7)	*** (***)	54 (2.2)	52 (1.8)	25 (1.7)	*** (***)	46 (2.2)	48 (1.8)
Dist. Columbia	45 (3.8)	15 (1.2)	*** (***)	25 (2.9)	55 (3.8)	85 (1.2)	*** (***)	75 (2.9)
Florida	68 (3.2)!	32 (1.9)	44 (4.8)!	50 (2.2)	32 (3.2)!	68 (1.9)	56 (4.8)!	50 (2.2)
Georgia	81 (2.4)!	39 (5.5)!	46 (2.9)	52 (2.1)	19 (2.4)!	61 (5.5)!	54 (2.9)	48 (2.1)
Hawaii	65 (3.7)	32 (3.0)	*** (***)	47 (1.3)	35 (3.7)	68 (3.0)	*** (***)	53 (1.3)
Idaho	*** (***)	*** (***)	68 (1.7)	70 (1.6)	*** (***)	*** (***)	32 (1.7)	30 (1.6)
Indiana	77 (4.2)!	34 (8.2)!	63 (3.4)	65 (1.9)	23 (4.2)!	66 (8.2)!	37 (3.4)	35 (1.9)
Iowa	89 (3.9)!	55 (6.2)!	78 (1.9)	75 (1.9)	11 (3.9)!	45 (6.2)!	22 (1.9)	25 (1.9)
Kentucky	63 (4.1)!	38 (3.3)!	47 (3.1)	53 (2.1)	37 (4.1)!	62 (3.3)!	53 (3.1)	47 (2.1)
Louisiana	63 (5.2)!	26 (4.8)	26 (3.6)!	43 (2.5)	37 (5.2)!	74 (4.8)	74 (3.6)!	57 (2.5)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	70 (4.8)	25 (4.8)!	51 (6.5)!	57 (2.9)	30 (4.8)	75 (4.8)!	49 (6.5)!	43 (2.9)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	80 (2.5)!	25 (4.4)!	64 (2.6)	65 (2.2)	20 (2.5)!	75 (4.4)!	36 (2.6)	35 (2.2)
Minnesota	75 (2.4)	*** (***)	76 (1.7)	77 (1.9)	25 (2.4)	*** (***)	24 (1.7)	23 (1.9)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	85 (3.0)	*** (***)	78 (2.4)	70 (1.6)	15 (3.0)	*** (***)	22 (2.4)	30 (1.6)
New Hampshire	73 (3.8)	*** (***)	74 (7.2)!	73 (1.2)	27 (3.8)	*** (***)	26 (7.2)!	27 (1.2)
New Jersey	82 (2.9)	27 (3.5)	*** (***)	66 (2.6)	18 (2.9)	73 (3.5)	*** (***)	34 (2.6)
New Mexico	83 (3.7)	54 (6.3)	48 (3.3)	48 (1.3)	17 (3.7)	46 (6.3)	52 (3.3)	52 (1.3)
New York	77 (2.8)!	29 (3.4)	74 (3.8)!	68 (2.0)	23 (2.8)!	71 (3.4)	26 (3.8)!	32 (2.0)
North Carolina	65 (6.1)!	39(13.9)!	37 (3.6)	45 (1.6)	35 (6.1)!	61(13.9)!	63 (3.6)	55 (1.6)
North Dakota	84 (2.8)	*** (***)	80 (2.6)	82 (2.2)	16 (2.8)	*** (***)	20 (2.6)	18 (2.2)
Ohio	79 (2.2)!	32 (5.0)	65 (3.3)!	60 (1.8)	21 (2.2)!	68 (5.0)	35 (3.3)!	40 (1.8)
Oklahoma	81 (2.2)!	41 (3.8)!	53 (3.4)	62 (2.3)	19 (2.2)!	59 (3.8)!	47 (3.4)	38 (2.3)
Pennsylvania	84 (2.4)!	37 (7.0)!	68 (4.1)!	65 (2.0)	16 (2.4)!	63 (7.0)!	32 (4.1)!	35 (2.0)
Rhode Island	72 (1.9)	37 (2.6)	*** (***)	54 (1.4)	28 (1.9)	63 (2.6)	*** (***)	46 (1.4)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	74 (3.1)!	35 (3.6)!	60 (4.0)!	51 (2.2)	26 (3.1)!	65 (3.6)!	40 (4.0)!	49 (2.2)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	77 (3.0)	36 (6.2)!	39 (3.9)	55 (2.0)	23 (3.0)	64 (6.2)!	61 (3.9)	45 (2.0)
West Virginia	*** (***)	53 (3.8)!	49 (2.0)!	49 (1.5)	*** (***)	47 (3.8)!	51 (2.0)!	51 (1.5)
Wisconsin	88 (3.1)!	34 (5.0)!	82 (2.7)	73 (1.7)	12 (3.1)!	66 (5.0)!	18 (2.7)	27 (1.7)
Wyoming	*** (***)	*** (***)	76 (2.1)	71 (1.5)	*** (***)	*** (***)	24 (2.1)	29 (1.5)
TERRITORIES								
Guam	*** (***)	*** (***)	30 (1.3)	26 (1.5)	*** (***)	*** (***)	70 (1.3)	74 (1.5)
Virgin Islands	*** (***)	*** (***)	5 (1.8)	12 (1.4)	*** (***)	*** (***)	95 (1.8)	88 (1.4)

(xxx) Did not participate in the 1990 Trial State Assessment.

Average Overall Mathematics Proficiency by Quintiles for Selected Demographic Groups

FIGURE 2.1 presents the average mathematics proficiency for the states and territories that participated in the 1992 Trial State Assessment by 20 percent bands, called quintiles, for selected demographic subgroups. For example, those states in the highest, or fifth, quintile of performance, had average proficiency in the top 20 percent of the states for the demographic characteristic under consideration. The quintiles of performance, in descending order, show the highest to lowest performing states according to the following 20 percent intervals: 1) 80 to 100; 2) 60 to 80; 3) 40 to 60; 4) 20 to 40; and 5) 0 to 20 percent.

This information can be used to summarize performance across states for the race/ethnicity, gender, and community type data presented in earlier sections of this chapter as well as the results by level of parents' education in the following section.

Across states, performance by gender appeared essentially equivalent. That is, states whose male students had average proficiency in the top 20 percent across participating jurisdictions also had female students who tended to outperform their counterparts. There were, however, some exceptions. In Michigan, New York, and West Virginia, the fourth-grade males were in a higher quintile than the females, while for Arizona, Georgia, and Missouri the reverse happened. Across participating jurisdictions at grade 8, males were in a higher quintile than females in Michigan, Tennessee, Texas, and Utah, whereas females were in the higher quintile in Delaware, Hawaii, Virginia, and Wyoming.

Average proficiency by quintile tended to vary somewhat more for the other three demographic groups shown. For example, at grade 4 in Indiana, White students were in the second to lowest quintile, Black students in the middle quintile, and Hispanic students in the second to highest quintile. At grade 8 in Colorado, the disadvantaged urban students performed in the top 20 percent of disadvantaged urban students across participating jurisdictions, the extreme rural students were in the second highest quintile, and the advantaged urban students in the middle quintile.

FIGURE 2.1

Average Overall Mathematics Proficiency by Selected Demographics for Five Performance Bands (Quintiles) 1992 Grade 4

THE NATION'S REPORT CARD naep

	GENDER		RACE/ETHNICITY			SIZE AND TYPE OF COMMUNITY				PARENTS' EDUCATION			
	Male	Female	White	Black	Hispanic	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other	College Graduate	Some College	High School Graduate	Less than High School
Alabama (AL)	1	1	1	1	1	2	2	1	1	1	1	1	3
Arizona (AZ)	2	3	3	■	2	1	■	2	2	2	3	3	3
Arkansas (AR)	1	1	1	1	1	X	2	2	1	1	1	2	1
California (CA)	1	1	2	1	1	2	1	X	1	1	1	1	1
Colorado (CO)	3	■	3	■	3	3	■	3	3	■	■	3	2
Connecticut (CT)	■	■	■	3	3	■	3	X	■	■	3	■	■
Delaware (DE)	3	3	3	■	2	1	■	3	3	3	1	3	1
District of Columbia (DC)	1	1	■	2	1	1	1	X	1	1	1	1	1
Florida (FL)	2	2	2	2	■	2	2	2	3	2	2	2	2
Georgia (GA)	2	3	■	■	1	■	2	3	2	2	3	2	3
Hawaii (HI)	2	2	1	■	2	1	2	2	2	1	2	1	2
Idaho (ID)	■	■	2	X	3	3	X	3	3	3	■	3	2
Indiana (IN)	■	■	2	3	■	3	3	■	3	3	■	■	■
Iowa (IA)	■	■	■	3	■	■	■	■	■	■	■	■	■
Kentucky (KY)	2	2	1	■	2	3	■	3	2	2	2	2	3
Louisiana (LA)	1	1	1	1	2	1	1	1	1	1	1	1	1
Massachusetts (MA)	■	■	■	2	3	■	■	X	■	■	■	■	1
Maryland (MD)	3	3	■	3	■	2	1	■	3	3	■	2	2
Maine (ME)	■	■	■	X	■	X	X	■	■	■	■	■	■
Michigan (MI)	■	3	3	1	3	■	1	3	■	3	3	3	3
Minnesota (MN)	■	■	■	2	■	■	X	■	■	■	■	■	X
Mississippi (MS)	1	1	1	1	1	X	1	1	1	1	1	1	1
Missouri (MO)	3	■	3	■	■	■	2	■	■	■	■	■	■
Nebraska (NE)	■	■	■	2	■	■	■	■	■	■	■	■	X
New Hampshire (NH)	■	■	■	X	■	3	X	■	■	■	■	■	■
New Jersey (NJ)	■	■	■	■	3	■	3	X	■	■	■	■	■
New Mexico (NM)	2	2	3	■	3	1	3	1	1	2	3	2	3
New York (NY)	3	2	■	■	2	2	3	X	■	3	3	3	■
North Carolina (NC)	1	2	2	2	2	3	■	2	1	2	2	1	2
North Dakota (ND)	■	■	■	X	■	■	X	■	■	■	■	■	X
Ohio (OH)	3	3	2	3	■	■	3	3	■	■	2	■	■
Oklahoma (OK)	3	3	2	■	■	1	■	■	3	3	3	■	■
Pennsylvania (PA)	■	■	■	3	3	■	3	■	■	■	■	■	■
Rhode Island (RI)	2	2	2	2	1	■	2	X	3	3	2	2	2
South Carolina (SC)	2	1	3	3	2	2	2	1	2	2	2	1	■
Tennessee (TN)	1	1	1	2	1	1	1	1	2	1	1	2	3
Texas (TX)	3	3	■	■	■	■	■	■	2	3	3	3	■
Utah (UT)	■	■	3	X	■	3	■	3	■	■	■	■	■
Virginia (VA)	■	3	■	■	■	3	■	2	3	■	2	3	3
West Virginia (WV)	3	2	1	■	3	X	■	2	2	2	3	3	2
Wisconsin (WI)	■	■	■	■	■	■	■	■	■	■	■	■	■
Wyoming (WY)	■	■	3	X	■	2	■	■	■	■	■	■	■
Guam (GU)	1	1	1	1	1	X	X	1	1	1	1	1	1

Quintiles of Performance

bottom 20 percent				top 20 percent
1	2	3	■	■
1st	2nd	3rd	4th	5th

lower ⟵ proficiency ⟶ higher

States categorized in the bottom 20 percent of performance have average mathematics proficiencies in the lowest fifth of the average mathematics proficiency distribution of all states and are indicated by the number 1 (first quintile). States with average proficiencies in the top 20 percent of the distribution are indicated by the number 5 (fifth quintile). The numbers 2, 3, and 4 indicate states with average proficiencies in the second, third, and fourth fifths of the distribution.

X Sample size too small (fewer than 62 students) to permit reliable reporting of performance bands (quintiles).

FIGURE 2.1
(cont.)

Average Overall Mathematics Proficiency by Selected Demographics for Five Performance Bands (Quintiles) 1992 Grade 8

THE NATION'S REPORT CARD

	GENDER		RACE/ETHNICITY			SIZE AND TYPE OF COMMUNITY				PARENTS' EDUCATION			
	Male	Female	White	Black	Hispanic	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other	College Graduate	Some College	High School Graduate	Less than High School
Alabama (AL)	1	1	1	1	1	1	1	1	1	1	1	1	1
Arizona (AZ)	3	3	3	5	5	2	5	2	3	3	3	3	3
Arkansas (AR)	1	1	1	1	1	X	1	2	1	1	1	2	3
California (CA)	2	2	3	2	3	4	1	X	3	2	2	2	1
Colorado (CO)	5	5	5	5	5	3	5	5	5	5	5	5	5
Connecticut (CT)	5	5	5	5	3	2	3	X	5	5	5	5	3
Delaware (DE)	2	3	2	3	2	X	X	3	2	2	2	2	3
District of Columbia (DC)	1	1	X	2	1	1	1	X	1	1	1	1	1
Florida (FL)	2	2	2	2	3	1	5	2	2	2	2	2	2
Georgia (GA)	2	2	2	5	2	1	3	1	2	2	1	2	2
Hawaii (HI)	1	2	1	X	2	1	2	X	2	1	2	1	2
Idaho (ID)	5	5	5	X	5	5	5	4	5	5	5	5	5
Indiana (IN)	4	4	3	5	5	3	3	3	5	5	5	5	5
Iowa (IA)	5	5	5	X	5	5	5	5	5	5	5	5	5
Kentucky (KY)	2	2	1	3	2	3	5	3	2	3	2	3	3
Louisiana (LA)	1	1	1	1	1	X	1	1	1	1	1	1	1
Massachusetts (MA)	4	4	5	5	2	5	3	X	5	5	5	5	5
Maryland (MD)	3	3	5	3	3	3	2	X	3	3	2	2	1
Maine (ME)	5	5	5	X	X	X	X	5	5	5	5	5	5
Michigan (MI)	4	3	5	1	5	4	2	5	4	3	3	3	4
Minnesota (MN)	5	5	5	X	5	4	X	5	5	5	5	5	5
Mississippi (MS)	1	1	1	1	1	X	2	1	1	1	1	1	1
Missouri (MO)	4	4	3	4	5	1	4	3	5	5	5	5	5
Nebraska (NE)	5	5	5	2	5	X	4	5	4	5	5	5	3
New Hampshire (NH)	5	5	4	X	5	5	X	5	5	5	5	5	5
New Jersey (NJ)	4	4	5	4	5	5	2	X	5	5	5	4	5
New Mexico (NM)	2	2	2	X	4	2	4	2	2	2	1	2	2
New York (NY)	3	3	5	1	3	5	1	4	3	3	3	3	2
North Carolina (NC)	1	1	2	3	2	2	2	1	1	2	2	1	1
North Dakota (ND)	5	5	5	X	X	3	X	5	5	5	5	5	5
Ohio (OH)	3	3	3	2	3	5	3	5	3	3	4	5	2
Oklahoma (OK)	3	3	2	3	4	X	5	3	3	3	3	3	5
Pennsylvania (PA)	4	4	3	3	3	4	3	5	4	5	5	5	5
Rhode Island (RI)	3	3	2	3	2	3	2	X	3	2	3	3	2
South Carolina (SC)	2	2	2	4	2	1	3	3	2	2	2	1	3
Tennessee (TN)	2	1	1	2	1	2	1	2	2	1	2	2	2
Texas (TX)	3	2	4	5	4	4	4	3	2	4	3	3	3
Utah (UT)	5	4	3	X	4	2	5	3	4	3	5	5	5
Virginia (VA)	3	4	3	5	5	3	5	2	3	5	3	3	5
West Virginia (WV)	2	2	1	5	2	X	5	2	1	2	3	2	2
Wisconsin (WI)	5	5	5	5	3	5	2	5	5	5	5	5	5
Wyoming (WY)	4	5	4	X	5	X	5	5	5	5	5	5	5
Guam (GU)	1	1	2	X	1	X	X	1	1	1	1	1	1
Virgin Islands (VI)	1	1	X	1	1	X	X	1	1	1	1	1	1

Quintiles of Performance

bottom 20 percent				top 20 percent
1	2	3	4	5
1st	2nd	3rd	4th	5th

lower ← proficiency → higher

States categorized in the bottom 20 percent of performance have average mathematics proficiencies in the lowest fifth of the average mathematics proficiency distribution of all states and are indicated by the number 1 (first quintile). States with average proficiencies in the top 20 percent of the distribution are indicated by the number 5 (fifth quintile). The numbers 2, 3, and 4 indicate states with average proficiencies in the second, third, and fourth fifths of the distribution.

X Sample size too small (fewer than 62 students) to permit reliable reporting of performance bands (quintiles).

National Performance by Parents' Highest Level of Education

TABLE 2.11 contains the national data for average mathematics proficiency and achievement levels by parents' highest level of education for students in grades 4, 8, and 12 in 1990 and 1992. In 1992, eighth- and twelfth-grade students whose parents had graduated from college performed better on average in mathematics than those students whose parents had some education after high school. This latter group of students performed significantly better than those whose parents had graduated from high school, and this group in turn performed better than those students whose parents did not finish high school. At grade 4, the pattern was similar, except that there was no significant difference between students whose parents had graduated from college and those whose parents had some education after high school. However, it should be noted that in both 1990 and 1992 a much higher percentage of students at grade 4 than at grades 8 and 12 were unsure about their parents' education level. Approximately one-third of the fourth graders did not know the answer to this question compared to about 9 percent of the eighth graders and 2 to 3 percent of the twelfth graders.

Average performance in mathematics improved from 1990 to 1992 at all three grades for students who reported their parents had graduated from college. At grade 4, students whose parents had graduated from high school showed improvement. At grades 8 and 12, there also were gains for those students whose parents had not finished high school.

In 1992, it was estimated that virtually no fourth or twelfth graders whose parents had only a high school diploma or less reached the Advanced achievement level, and at eighth grade only 1 percent were at the Advanced level for the corresponding groups of students. Six percent or fewer of the students whose parents either had some education past high school or had graduated from college were estimated to be at or above the Advanced level at any grade. Thirteen percent or fewer of the students whose parents had only a high school diploma or less were estimated to have performed at or above the Proficient level at any of the three grades assessed. For those students whose parents had some education after high school, about one-fifth in fourth grade, almost one-fourth in eighth grade, and 13 percent in twelfth grade were estimated to be at or above the Proficient level. For students whose parents had graduated from college, about one-fourth in fourth grade, more than one-third in eighth grade, and one-fourth in twelfth grade were estimated to be at or above the Proficient level. About 40 percent of the students at all three grades whose parents did not finish high school and about one-half of the students at all three grades whose parents had graduated from high school were estimated to be achieving at or above the Basic level. Approximately two-thirds of the students whose parents had some education after high school were estimated to be at or above this level at all three grades. Also, about the same proportion of fourth graders whose parents graduated from college reached the Basic level or higher. About three-fourths of the eighth and twelfth graders who had parents who were college graduates achieved at or above the Basic level.

Although the percentages of students attaining the Advanced level remained essentially unchanged between 1990 and 1992, gains at the Proficient level were made during the same period by eighth graders whose parents had graduated from college. Gains at the Proficient and Basic levels were made by fourth graders who were unsure about their parents' educational background.

TABLE 2.11 Average Mathematics Proficiency and Achievement Levels by Parents' Highest Level of Education, Grades 4, 8, and 12

	Assessment Years	Percentage of Students	Average Proficiency	Percentage of Students At or Above			Percentage Below Basic
				Advanced	Proficient	Basic	
Grade 4							
Graduated College	1992	41(1.0)	226(1.0)>	4(0.6)	26(1.8)	69(1.3)	31(1.3)
	1990	35(1.2)	221(1.5)	3(0.7)	21(2.2)	64(2.4)	36(2.4)
Some Education after High School	1992	7(0.4)	224(1.5)	2(0.7)	21(2.2)	69(2.8)	31(2.8)
	1990	8(0.5)	222(2.5)	3(1.2)	20(4.2)	66(4.3)	34(4.3)
Graduated High School	1992	12(0.5)	213(1.5)>	0(0.4)	12(1.6)	55(2.6)	45(2.6)
	1990	15(0.9)	208(1.5)	0(0.2)	8(1.9)	48(2.7)	52(2.7)
Did Not Finish High School	1992	4(0.3)	204(2.6)	0(0.4)	6(1.9)	42(5.2)	58(5.2)
	1990	5(0.4)	202(3.7)	0(0.0)	8(4.5)	42(4.9)	58(4.9)
I don't know	1992	35(0.7)	213(0.8)>	1(0.3)	13(1.0)>	53(1.3)>	47(1.3)<
	1990	37(1.3)	207(1.2)	1(0.5)	8(1.0)	46(2.1)	54(2.1)
Grade 8							
Graduated College	1992	42(1.3)	280(1.2)>	6(0.9)	38(1.8)>	75(1.2)	25(1.2)
	1990	41(1.8)	274(1.5)	4(0.7)	30(1.9)	72(1.7)	28(1.7)
Some Education after High School	1992	18(0.5)	270(1.1)	3(0.7)	24(1.2)	68(1.7)	32(1.7)
	1990	17(0.8)	268(1.6)	3(0.9)	20(2.3)	65(2.2)	35(2.2)
Graduated High School	1992	24(0.7)	257(1.2)	1(0.4)	13(1.2)	52(2.0)	48(2.0)
	1990	24(1.1)	255(1.6)	0(0.3)	12(1.5)	50(2.1)	50(2.1)
Did Not Finish High School	1992	8(0.5)	248(1.7)>	1(0.5)	8(1.7)	40(3.3)	60(3.3)
	1990	9(0.8)	242(2.0)	0(0.1)	4(1.4)	33(3.7)	67(3.7)
I don't know	1992	9(0.4)	251(1.6)>	1(0.5)	11(1.8)	44(2.3)	56(2.3)
	1990	9(0.6)	241(3.2)	0(0.2)	7(2.0)	36(3.7)	64(3.7)
Grade 12							
Graduated College	1992	43(1.1)	310(1.2)>	4(0.7)	25(1.4)	77(1.4)	23(1.4)
	1990	39(1.4)	306(1.6)	3(0.6)	20(1.8)	72(1.9)	28(1.9)
Some Education after High School	1992	26(0.7)	298(1.0)	1(0.4)	13(0.9)	63(1.8)	37(1.8)
	1990	27(1.0)	297(1.2)	1(0.5)	12(1.5)	64(1.7)	36(1.7)
Graduated High School	1992	21(0.8)	287(1.4)	0(0.2)	7(0.9)	51(2.0)	49(2.0)
	1990	24(1.1)	283(2.0)	1(0.4)	6(1.2)	46(2.8)	54(2.8)
Did Not Finish High School	1992	6(0.4)	278(1.7)>	0(0.3)	3(1.5)	38(2.9)	62(2.9)
	1990	8(0.7)	272(2.1)	0(0.0)	3(1.9)	30(3.5)	70(3.5)
I don't know	1992	3(0.3)	276(3.0)	0(0.8)	3(1.9)	37(5.6)	63(5.6)
	1990	2(0.3)	268(4.9)	0(1.1)	3(1.8)	32(6.5)	68(6.5)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent confidence for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details). When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 percent or less were rounded to 0 percent. Percentages may not total 100 percent due to rounding error.

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Performance by Parents' Highest Level of Education for the States

Average mathematics proficiency by parents' highest level of education for states and territories is displayed in TABLE 2.12. The overall pattern for fourth and eighth graders shows that average performance of students whose parents graduated from college is higher than or the same as the average performance of students whose parents have some education after high school. In addition, students whose parents have some education after high school show an average performance level equal to or higher than the average performance of students whose parents graduated from high school. The average performance level of students whose parents graduated from high school is the same as or higher than that for students whose parents did not finish high school. It should be remembered, however, that approximately one-third of the fourth graders did not know their parents' educational level.

Trends between 1990 and 1992 for eighth graders show increased average mathematics proficiency for students in Connecticut, Iowa, Kentucky, Minnesota, North Carolina, and Texas whose parents had graduated from college; for students in North Carolina whose parents had some education after high school; and for students in Colorado, Idaho, Minnesota, and New Hampshire whose parents had graduated from high school.

TABLE 2.13 shows the achievement levels of fourth and eighth graders by their parents' educational background. The overall pattern among fourth and eighth graders is that higher percentages of students whose parents graduated from college performed at or above the Advanced and Proficient levels than did students whose parents are less well educated, particularly those whose parents had not graduated from high school.

Three states had significant increases between 1990 and 1992 in the percentages of students reaching the Proficient achievement level for students whose parents had graduated from college -- Iowa, Kentucky, and Minnesota. In Kentucky, there also was an increase in the percentage of students that reached the Basic level for those whose parents had graduated from college. Across the participating jurisdictions, however, statistically significant performance improvements were not found at the achievement levels for eighth graders whose parents had not graduated from college.

TABLE 2.12 | Average Mathematics Proficiency by Parents' Highest Level of Education

	Grade 4 - 1992									
	Graduated College		Some Education After High School		Graduated High School		Did Not Finish High School		I Don't Know	
PUBLIC SCHOOLS	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency
NATION	40 (1.1)	225 (1.2)	7 (0.4)	223 (1.7)	13 (0.6)	212 (1.6)	4 (0.3)	203 (2.7)	36 (0.8)	212 (0.9)
Northeast	44 (3.2)	231 (3.0)	6 (0.6)	229 (4.7)	11 (0.9)	215 (5.2)	4 (0.7)	*** (***)	35 (2.0)	216 (2.4)
Southeast	37 (1.8)	215 (2.2)	7 (0.8)	217 (3.6)	16 (1.1)	203 (3.3)	6 (0.6)	198 (3.9)	34 (1.2)	205 (1.6)
Central	40 (2.3)	229 (2.2)	8 (0.9)	228 (4.1)	13 (1.6)	218 (3.3)	4 (0.6)	*** (***)	35 (2.1)	216 (2.4)
West	38 (1.9)	224 (2.4)	7 (1.0)	218 (2.3)	12 (1.0)	216 (2.4)	4 (0.5)	202 (5.1)	39 (1.3)	212 (1.9)
STATES										
Alabama	35 (1.3)	211 (2.3)	9 (0.7)	216 (2.2)	19 (1.0)	203 (2.0)	8 (0.7)	202 (1.9)	28 (1.1)	203 (2.0)
Arizona	33 (1.1)	220 (1.4)	8 (0.7)	225 (1.8)	11 (0.7)	210 (2.6)	4 (0.4)	202 (3.3)	44 (1.1)	209 (1.4)
Arkansas	32 (1.3)	213 (1.7)	9 (0.7)	215 (1.9)	18 (0.9)	208 (1.5)	7 (0.5)	198 (2.2)	34 (1.2)	206 (1.2)
California	35 (1.5)	216 (2.0)	7 (0.7)	217 (2.9)	8 (0.6)	200 (2.7)	5 (0.5)	189 (4.7)	45 (1.4)	202 (1.7)
Colorado	40 (1.0)	228 (1.3)	9 (0.6)	228 (2.0)	10 (0.6)	212 (2.0)	4 (0.3)	200 (2.6)	37 (1.2)	213 (1.2)
Connecticut	44 (1.2)	235 (1.3)	7 (0.7)	225 (2.8)	10 (0.6)	218 (2.1)	4 (0.4)	205 (2.8)	35 (1.2)	220 (1.7)
Delaware	39 (0.9)	225 (1.6)	7 (0.6)	219 (2.8)	14 (0.9)	213 (1.8)	5 (0.6)	196 (3.3)	35 (0.8)	211 (1.0)
Dist. Columbia	42 (1.0)	196 (1.1)	6 (0.4)	198 (2.7)	14 (0.7)	187 (1.9)	4 (0.4)	186 (3.0)	33 (0.8)	187 (1.1)
Florida	37 (1.5)	219 (2.4)	8 (0.5)	221 (2.3)	13 (0.9)	204 (2.2)	4 (0.5)	199 (2.6)	38 (1.2)	208 (1.5)
Georgia	37 (1.2)	221 (1.8)	7 (0.6)	223 (2.3)	18 (0.8)	205 (1.8)	5 (0.6)	202 (2.5)	32 (1.2)	211 (1.5)
Hawaii	36 (1.3)	218 (2.0)	6 (0.5)	219 (2.7)	14 (0.8)	203 (1.8)	3 (0.4)	199 (4.1)	41 (1.2)	211 (1.4)
Idaho	36 (1.2)	227 (1.3)	9 (0.6)	228 (2.0)	12 (0.8)	215 (1.8)	3 (0.4)	200 (2.9)	39 (1.3)	216 (1.2)
Indiana	34 (1.2)	226 (1.4)	8 (0.6)	230 (2.0)	18 (0.9)	216 (1.5)	6 (0.5)	209 (2.5)	34 (1.1)	214 (1.2)
Iowa	40 (1.3)	236 (1.2)	9 (0.6)	235 (2.0)	13 (0.8)	223 (2.1)	3 (0.4)	211 (2.9)	34 (1.0)	223 (1.3)
Kentucky	27 (1.3)	223 (1.8)	9 (0.7)	222 (2.7)	20 (1.1)	210 (1.5)	10 (0.6)	203 (1.8)	35 (0.9)	210 (1.2)
Louisiana	36 (1.4)	207 (1.8)	8 (0.5)	214 (2.8)	16 (0.8)	198 (2.3)	6 (0.5)	194 (2.7)	34 (1.1)	201 (1.9)
Maine	36 (1.7)	240 (1.5)	9 (0.9)	240 (2.1)	16 (1.1)	225 (1.9)	4 (0.4)	215 (3.4)	35 (1.6)	224 (1.3)
Maryland	41 (1.2)	224 (1.6)	8 (0.6)	226 (2.5)	12 (0.8)	206 (2.8)	4 (0.5)	201 (2.8)	36 (1.1)	210 (1.5)
Massachusetts	46 (1.6)	234 (1.3)	7 (0.8)	230 (2.9)	11 (0.7)	219 (2.0)	2 (0.3)	195 (4.1)	33 (1.4)	217 (1.7)
Michigan	38 (1.7)	227 (2.1)	9 (0.7)	224 (2.1)	14 (0.8)	212 (2.4)	3 (0.4)	201 (5.3)	36 (1.4)	213 (1.9)
Minnesota	38 (1.2)	236 (1.4)	6 (0.5)	230 (2.8)	12 (0.7)	220 (1.7)	2 (0.3)	*** (***)	41 (1.2)	222 (1.1)
Mississippi	35 (1.5)	205 (1.6)	6 (0.5)	209 (2.9)	18 (1.3)	197 (2.4)	8 (0.7)	193 (2.3)	32 (1.3)	197 (1.5)
Missouri	36 (1.3)	228 (1.6)	9 (0.6)	227 (1.8)	15 (0.9)	216 (2.2)	5 (0.7)	210 (2.6)	34 (1.1)	215 (1.4)
Nebraska	39 (1.4)	230 (1.6)	11 (0.7)	230 (2.4)	13 (0.8)	222 (2.3)	3 (0.3)	*** (***)	34 (1.5)	219 (1.4)
New Hampshire	42 (1.5)	236 (1.5)	9 (0.7)	232 (2.5)	13 (0.8)	222 (1.6)	3 (0.5)	211 (4.0)	33 (1.3)	223 (1.4)
New Jersey	47 (1.7)	234 (1.7)	8 (0.6)	230 (2.8)	11 (0.7)	219 (2.1)	3 (0.4)	210 (3.8)	31 (1.3)	217 (2.1)
New Mexico	31 (1.9)	221 (2.1)	9 (0.7)	223 (2.9)	15 (1.0)	207 (2.4)	7 (0.7)	202 (2.3)	38 (1.4)	206 (1.5)
New York	41 (1.4)	227 (1.8)	7 (0.8)	225 (3.1)	11 (1.0)	211 (2.4)	4 (0.5)	210 (3.0)	37 (1.7)	210 (1.4)
North Carolina	38 (1.5)	219 (1.7)	9 (0.7)	220 (2.5)	16 (0.7)	204 (1.9)	6 (0.5)	201 (2.5)	30 (1.3)	206 (1.4)
North Dakota	43 (1.3)	233 (0.9)	7 (0.7)	234 (2.6)	12 (0.8)	224 (1.7)	3 (0.4)	*** (***)	34 (1.4)	221 (1.3)
Ohio	36 (1.4)	227 (1.5)	8 (0.6)	221 (3.0)	17 (0.9)	215 (2.0)	5 (0.5)	205 (2.6)	34 (1.2)	210 (1.4)
Oklahoma	35 (1.3)	225 (1.4)	10 (0.7)	225 (1.8)	16 (0.9)	215 (1.6)	5 (0.5)	209 (2.8)	34 (1.4)	214 (1.1)
Pennsylvania	37 (1.4)	230 (2.0)	9 (0.8)	236 (2.0)	16 (0.9)	220 (1.6)	4 (0.4)	211 (3.3)	34 (1.2)	215 (1.8)
Rhode Island	36 (1.3)	224 (1.9)	8 (0.6)	220 (2.5)	11 (0.7)	207 (2.6)	5 (0.4)	200 (2.7)	40 (1.3)	208 (2.1)
South Carolina	36 (1.2)	220 (1.6)	7 (0.5)	219 (2.5)	17 (1.0)	204 (1.7)	5 (0.5)	204 (2.3)	35 (1.2)	205 (1.5)
Tennessee	34 (1.4)	217 (2.2)	9 (0.6)	213 (2.8)	18 (0.9)	205 (2.0)	8 (0.6)	201 (2.3)	31 (1.0)	205 (1.4)
Texas	33 (1.6)	224 (2.0)	8 (0.6)	225 (2.5)	13 (0.8)	213 (2.7)	7 (0.6)	211 (2.4)	39 (1.4)	212 (1.6)
Utah	40 (1.4)	230 (1.3)	8 (0.6)	228 (2.0)	10 (0.7)	216 (2.3)	3 (0.4)	205 (4.1)	39 (1.1)	217 (1.3)
Virginia	43 (1.4)	230 (1.8)	8 (0.6)	219 (2.4)	14 (0.8)	210 (1.8)	6 (0.5)	203 (2.6)	30 (1.1)	213 (1.8)
West Virginia	30 (1.3)	223 (1.7)	9 (0.5)	222 (2.2)	21 (0.8)	210 (1.3)	8 (0.6)	201 (2.1)	32 (1.0)	209 (1.4)
Wisconsin	35 (1.3)	234 (1.5)	10 (0.6)	237 (2.0)	15 (0.8)	225 (2.0)	3 (0.4)	219 (4.8)	38 (1.1)	221 (1.2)
Wyoming	37 (1.3)	229 (1.4)	11 (0.9)	232 (1.5)	12 (0.7)	221 (2.0)	4 (0.4)	215 (2.8)	35 (1.1)	219 (1.1)
TERRITORY										
Guam	31 (0.9)	191 (1.6)	6 (0.5)	206 (3.4)	13 (0.8)	186 (2.8)	6 (0.6)	183 (3.7)	44 (1.0)	192 (1.2)

The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. The percentages for parents' highest level of education may not add to 100 percent because some students responded "I don't know." ***Sample size insufficient to permit reliable estimate. There were fewer than 62 students.

TABLE 2.12 | Average Mathematics Proficiency by Parents' Highest Level of Education (continued)

PUBLIC SCHOOLS	Grade 8 - 1992									
	Graduated College		Some Education After High School		Graduated High School		Did Not Finish High School		I Don't Know	
	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency
NATION	40 (1.4)	279 (1.4)	18 (0.6)	270 (1.2)	25 (0.8)	256 (1.4)	8 (0.6)	248 (1.8)	9 (0.5)	251 (1.7)
Northeast	38 (3.1)	282 (4.2)	18 (1.1)	267 (3.0)	26 (2.2)	259 (4.2)	8 (0.9)	246 (4.2)	10 (1.2)	250 (3.3)
Southeast	35 (1.9)	270 (1.9)	17 (0.8)	263 (2.0)	28 (1.4)	249 (1.9)	12 (1.8)	246 (4.2)	8 (1.0)	248 (4.3)
Central	42 (2.7)	283 (2.9)	20 (1.4)	273 (1.6)	26 (1.7)	264 (2.3)	4 (0.7)	*** (***)	7 (0.8)	258 (3.8)
West	43 (2.9)	279 (2.6)	18 (1.2)	274 (2.6)	19 (1.5)	252 (2.9)	9 (1.1)	248 (2.4)	11 (0.9)	248 (2.9)
STATES										
Alabama	33 (1.6)	261 (2.5)	18 (0.7)	258 (2.0)	29 (1.1)	244 (1.8)	13 (0.9)	239 (2.0)	7 (0.6)	237 (2.9)
Arizona	36 (1.5)	277 (1.5)	22 (1.0)	270 (1.5)	21 (0.9)	256 (1.6)	10 (0.7)	245 (2.5)	12 (0.8)	248 (2.7)
Arkansas	30 (1.1)	264 (1.9)	20 (0.8)	264 (1.7)	31 (1.1)	248 (1.6)	11 (0.7)	246 (2.4)	8 (0.6)	245 (2.7)
California	39 (1.8)	275 (2.0)	18 (1.0)	266 (2.1)	17 (0.9)	251 (2.1)	10 (0.9)	241 (2.2)	16 (1.1)	240 (2.9)
Colorado	46 (1.2)	282 (1.3)	19 (0.9)	276 (1.6)	21 (0.9)	260 (1.5) >	6 (0.6)	250 (2.4)	7 (0.5)	252 (2.6)
Connecticut	47 (1.3)	288 (1.0) >	16 (0.8)	272 (1.8)	22 (0.9)	260 (1.8)	6 (0.6)	245 (3.3)	9 (0.6)	251 (2.4)
Delaware	39 (1.2)	274 (1.3)	18 (1.0)	268 (2.3)	30 (1.0)	251 (1.7)	6 (0.5)	248 (4.0)	8 (0.9)	248 (3.4)
Dist. Columbia	32 (1.0)	244 (1.7)	17 (0.8)	240 (1.9)	29 (0.8)	224 (1.6)	9 (0.7)	225 (3.2)	12 (0.6)	229 (2.2)
Florida	39 (1.5)	268 (1.9)	19 (0.7)	266 (1.9)	24 (1.1)	251 (1.8)	8 (0.7)	244 (2.7)	10 (0.7)	244 (3.2)
Georgia	35 (1.7)	271 (2.1)	18 (0.7)	264 (1.7)	30 (1.2)	250 (1.3)	11 (0.8)	244 (2.2)	6 (0.6)	245 (2.6)
Hawaii	38 (1.1)	267 (1.5)	15 (0.9) <	266 (1.9)	25 (1.0)	246 (1.8)	6 (0.5)	242 (3.5)	16 (0.8)	246 (2.1) >
Idaho	48 (1.2)	281 (0.9)	20 (0.8)	278 (1.3)	19 (0.9)	268 (1.4) >	7 (0.5)	254 (2.3)	6 (0.5)	254 (2.8)
Indiana	33 (1.5)	283 (1.5)	21 (0.9)	275 (1.9)	32 (1.1)	260 (1.6)	8 (0.6)	250 (2.6)	6 (0.5)	249 (3.3)
Iowa	44 (1.4)	291 (1.2) >	21 (0.8)	285 (1.5)	25 (1.1)	273 (1.3)	4 (0.4)	262 (2.4)	5 (0.4)	266 (2.8)
Kentucky	28 (1.4)	278 (1.6) »	19 (0.8)	267 (1.6)	32 (0.9)	254 (1.6)	15 (0.9)	246 (1.7)	6 (0.4)	242 (2.8)
Louisiana	32 (1.4)	256 (2.5)	20 (0.9)	259 (1.8)	30 (1.3)	24[illegible] (1.6)	10 (0.7)	237 (2.4)	7 (0.6)	236 (3.7)
Maine	40 (1.5)	288 (1.4)	22 (1.0)	281 (1.5)	26 (1.1)	267 (1.1)	6 (0.5)	259 (2.7)	5 (0.5)	266 (2.6)
Maryland	44 (1.7)	278 (1.8)	18 (0.9)	266 (1.9)	25 (1.2)	250 (1.8)	6 (0.8)	240 (3.7)	7 (0.5)	245 (3.8)
Massachusetts	48 (1.5)	284 (1.3)	17 (0.8)	272 (1.8)	21 (1.0)	261 (1.4)	7 (0.6)	248 (3.2)	7 (0.6)	248 (2.6)
Michigan	38 (1.6)	277 (2.2)	23 (0.9)	271 (2.0)	26 (0.9)	257 (1.7)	6 (0.5)	249 (2.0)	7 (0.6)	248 (3.0)
Minnesota	48 (1.3) >	290 (1.0) >	21 (0.9)	284 (1.8)	22 (0.9) «	270 (1.8) >	3 (0.4)	256 (4.2)	7 (0.6)	268 (3.0)
Mississippi	36 (1.7)	254 (1.6)	16 (0.7)	256 (2.0)	29 (1.4)	239 (1.6)	13 (0.8)	234 (1.8)	7 (0.6)	231 (2.8)
Missouri	36 (1.3)	280 (1.7)	22 (0.9)	275 (1.5)	29 (1.0)	264 (1.6)	8 (0.7)	254 (2.4)	6 (0.5)	252 (2.9)
Nebraska	46 (1.5)	287 (1.2)	20 (1.0)	280 (1.6)	24 (1.2)	267 (1.7)	4 (0.5)	247 (3.3)	6 (0.6)	256 (3.8)
New Hampshire	46 (1.5)	287 ([illegible]	17 (0.8)	280 (1.5)	24 (1.1)	267 (0.9) »	6 (0.5)	259 (2.5)	7 (0.5) >	262 (2.5)
New Jersey	45 (1.6)	283 (1.8)	18 (0.8)	275 (2.1)	23 (1.2)	259 (2.5)	7 (0.6)	253 (3.8)	8 (0.7)	250 (3.9)
New Mexico	34 (1.4)	272 (1.4)	20 (0.7)	264 (1.4)	26 (1.1)	249 (1.4)	11 (0.7)	244 (1.9)	10 (0.6)	245 (2.0) >
New York	44 (1.8)	277 (1.9)	18 (1.1)	271 (2.4)	23 (1.0)	256 (2.5)	6 (0.8)	243 (4.2)	10 (1.0)	240 (3.8)
North Carolina	36 (1.2)	271 (1.4) >	20 (0.8)	265 (1.6) >	27 (0.9) <	246 (1.7)	10 (0.6)	240 (2.3)	6 (0.5)	240 (3.6)
North Dakota	54 (1.2) >	289 (1.1)	18 (0.7)	283 (1.9)	19 (1.3)	271 (1.7)	3 (0.5)	259 (4.5)	5 (0.5)	272 (2.8)
Ohio	37 (1.4)	279 (1.8)	19 (0.7)	272 (1.6)	32 (1.1)	260 (2.3)	7 (0.6)	243 (2.6)	5 (0.5)	249 (4.5)
Oklahoma	39 (1.4)	277 (1.5)	21 (0.9)	272 (1.9)	26 (1.0)	257 (1.7)	8 (0.7)	254 (2.9)	6 (0.5)	251 (4.3)
Pennsylvania	39 (1.8)	282 (1.6)	19 (0.9)	274 (1.9)	30 (1.2)	262 (1.6)	7 (0.8)	252 (2.8)	5 (0.5)	252 (3.8)
Rhode Island	43 (1.1)	276 (1.1)	18 (1.5)	271 (1.5)	22 (1.4)	256 (1.6)	8 (0.4)	244 (2.1)	8 (0.6)	239 (2.5)
South Carolina	37 (1.4)	272 (1.5)	16 (0.7)	268 (1.7)	31 (0.9)	248 (1.4)	9 (0.6)	248 (2.1)	7 (0.3)	247 (3.0)
Tennessee	33 (1.5)	267 (2.1)	21 (0.9)	265 (1.8)	29 (1.0)	251 (1.6)	12 (0.8)	245 (2.0)	5 (0.4)	243 (3.6)
Texas	34 (1.6)	281 (2.1) >	18 (0.8) >	272 (1.6)	21 (1.0)	253 (1.6)	16 (1.0)	247 (1.7)	11 (0.8)	244 (2.4)
Utah	53 (1.3)	280 (1.0)	22 (1.0)	278 (1.2)	15 (0.8)	258 (1.8)	3 (0.3)	254 (3.2)	7 (0.5)	258 (2.7)
Virginia	41 (1.5)	282 (1.5)	18 (0.8)	270 (1.6)	24 (0.9)	252 (1.5)	9 (0.6)	248 (2.1)	8 (0.6)	251 (2.5)
West Virginia	29 (1.1)	270 (1.5)	18 (0.8)	269 (1.4)	33 (1.1) <	251 (1.2)	13 (0.9)	244 (1.8)	7 (0.4)	239 (2.3)
Wisconsin	38 (2.4)	287 (1.8)	24 (0.8)	282 (1.5)	28 (1.8)	270 (1.9)	5 (0.6)	254 (3.4)	6 (0.6)	255 (4.0)
Wyoming	42 (0.9)	281 (0.9)	22 (0.8)	278 (1.7)	23 (0.7)	266 (1.1)	5 (0.6)	258 (3.3)	7 (0.5)	260 (2.2) »
TERRITORIES										
Guam	28 (1.2)	246 (1.9)	13 (0.7)	244 (2.4)	27 (1.1)	229 (1.9)	10 (0.9)	224 (2.5)	22 (1.2)	226 (2.0)
Virgin Islands	23 (1.1)	224 (2.0)	11 (0.8)	232 (2.4)	29 (0.9)	221 (1.9)	14 (0.9)	219 (2.4)	24 (1.0)	217 (1.4)

The percentages for parents' highest level of education may not add to 100 percent because some students responded "I don't know." »The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple-comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

TABLE 2.12 | Average Mathematics Proficiency by Parents' Highest Level of Education (continued)

PUBLIC SCHOOLS	Grade 8 - 1990									
	Graduated College		Some Education After High School		Graduated High School		Did Not Finish High School		I Don't Know	
	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency	Percentage of Students	Average Proficiency
NATION	39 (1.9)	274 (1.6)	17 (0.9)	267 (1.6)	25 (1.2)	255 (1.5)	10 (0.8)	241 (2.0)	9 (0.7)	240 (3.3)
Northeast	49 (5.8)	282 (3.5)	15 (3.0)	267 (3.5)	23 (3.3)	260 (2.6)	7 (2.2)	*** (***)	7 (1.5)	*** (***)
Southeast	32 (3.3)	272 (3.3)	18 (1.7)	262 (2.5)	27 (1.6)	246 (4.2)	14 (2.1)	237 (3.2)	9 (1.6)	231 (5.0)
Central	35 (1.8)	272 (3.5)	19 (0.9)	268 (3.9)	33 (2.1)	263 (2.3)	7 (0.9)	*** (***)	6 (1.2)	*** (***)
West	42 (4.0)	273 [illegible]	16 (1.2)	269 (2.9)	19 (2.5)	249 (2.6)	10 (1.3)	245 (3.7)	13 (1.2)	241 (5.3)
STATES										
Alabama	34 (1.5)	263 (1.8)	18 (0.7)	260 (1.8)	30 (1.0)	246 (1.7)	12 (0.8)	239 (2.1)	6 (0.5)	238 (3.0)
Arizona	37 (1.2)	272 (1.7)	20 (0.9)	265 (1.9)	22 (0.9)	251 (1.7)	9 (0.6)	240 (2.2)	11 (0.8)	243 (2.1)
Arkansas	31 (1.1)	267 (1.4)	17 (0.8)	266 (1.6)	32 (0.9)	250 (1.2)	12 (0.6)	244 (1.5)	8 (0.6)	238 (2.6)
California	38 (1.6)	271 [illegible]	18 (0.7)	263 (2.0)	17 (0.9)	246 (1.8)	11 (0.7)	241 (2.6)	16 (0.9)	238 (1.9)
Colorado	47 (1.6)	[illegible]	19 (0.9)	271 (1.3)	19 (0.9)	254 (1.5)	7 (0.7)	243 (2.5)	8 (0.6)	249 (2.5)
Connecticut	47 (1.6)	[illegible]	16 (0.8)	269 (1.6)	23 (1.2)	256 (1.9)	5 (0.4)	243 (3.0)	7 (0.7)	248 (3.6)
Delaware	38 (0.9)	275 [illegible]	17 (0.8)	265 (1.9)	31 (1.0)	249 (1.8)	8 (0.8)	243 (2.7)	6 (0.5)	244 (3.5)
Dist. Columbia	34 (1.2)	239 (1.9)	17 (0.8)	238 (1.8)	31 (1.0)	224 (1.4)	8 (0.7)	225 (2.2)	10 (0.7)	221 (2.4)
Florida	37 (1.3)	267 (1.6)	18 (0.7)	263 (1.7)	26 (0.9)	245 (1.5)	9 (0.9)	237 (2.6)	10 (0.7)	242 (2.7)
Georgia	36 (1.8)	272 (2.1)	18 (0.9)	267 (1.8)	29 (1.1)	248 (1.7)	11 (0.9)	245 (1.8)	6 (0.6)	240 (3.4)
Hawaii	36 (1.0)	262 (1.3)	18 (0.7)	261 (1.9)	27 (0.9)	241 (1.5)	5 (0.5)	235 (3.2)	14 (0.8)	236 (2.6)
Idaho	46 (1.3)	279 (1.1)	22 (0.9)	274 (1.3)	19 (0.7)	262 (1.5)	6 (0.5)	251 (2.4)	7 (0.6)	254 (3.5)
Indiana	35 (1.4)	278 [illegible]	21 (0.9)	272 (1.6)	31 (1.1)	260 (1.4)	8 (0.7)	251 (2.8)	4 (0.4)	246 (3.0)
Iowa	42 (1.3)	285 (1.5)	21 (0.9)	282 (1.4)	27 (1.0)	270 (1.6)	5 (0.6)	258 (3.3)	4 (0.5)	266 (2.9)
Kentucky	26 (1.7)	268 (1.9)	18 (0.8)	269 (1.4)	32 (1.1)	253 (1.3)	16 (1.1)	240 (1.9)	8 (0.7)	242 (2.9)
Louisiana	28 (1.2)	254 (2.1)	19 (0.9)	255 (1.4)	33 (1.1)	242 (1.6)	13 (0.8)	235 (2.1)	7 (0.5)	236 (2.5)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	43 (1.8)	274 (1.8)	17 (0.7)	263 (2.0)	27 (1.3)	247 (1.6)	7 (0.7)	244 (3.1)	6 (0.4)	247 (2.5)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	39 (1.5)	275 (1.5)	20 (0.8)	269 (1.7)	27 (1.0)	255 (1.7)	6 (0.6)	248 (2.5)	8 (0.6)	250 (2.4)
Minnesota	42 (1.2)	285 (1.3)	22 (0.8)	282 (1.5)	27 (1.0)	263 (1.6)	4 (0.3)	252 (3.6)	6 (0.4)	258 (2.9)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	43 (1.0)	286 (1.3)	20 (0.7)	278 (1.4)	27 (1.1)	266 (1.7)	4 (0.5)	251 (5.2)	6 (0.5)	257 (3.6)
New Hampshire	46 (0.9)	283 (1.2)	19 (0.9)	275 (1.7)	25 (0.8)	261 (1.2)	6 (0.6)	257 (2.7)	4 (0.5)	255 (3.2)
New Jersey	45 (1.5)	281 (1.4)	16 (1.0)	270 (2.1)	24 (1.1)	260 (1.7)	7 (0.5)	250 (2.5)	8 (0.6)	250 (2.7)
New Mexico	33 (1.0)	272 (1.6)	19 (0.8)	263 (1.5)	27 (1.1)	248 (1.2)	11 (0.8)	241 (1.7)	9 (0.7)	234 (2.5)
New York	40 (1.2)	273 (1.3)	17 (0.9)	265 (2.3)	22 (0.9)	252 (1.9)	8 (0.7)	242 (2.8)	12 (0.8)	242 (3.6)
North Carolina	33 (1.3)	263 (1.9)	17 (0.8)	258 (1.6)	32 (1.0)	242 (1.3)	11 (0.7)	235 (1.9)	7 (0.5)	230 (2.9)
North Dakota	49 (1.3)	288 (1.4)	19 (0.8)	282 (2.0)	24 (1.3)	273 (2.5)	4 (0.7)	254 (4.4)	4 (0.5)	263 (3.7)
Ohio	36 (1.7)	274 (1.5)	20 (0.8)	269 (1.4)	32 (1.1)	257 (1.3)	7 (0.7)	246 (2.1)	5 (0.5)	239 (3.0)
Oklahoma	40 (1.7)	273 (1.7)	21 (0.9)	266 (2.0)	26 (1.3)	254 (1.3)	8 (0.6)	250 (3.0)	6 (0.6)	248 (3.7)
Pennsylvania	35 (1.4)	281 (2.0)	20 (0.9)	271 (1.6)	34 (1.2)	256 (1.7)	6 (0.6)	247 (3.1)	5 (0.6)	243 (4.2)
Rhode Island	41 (1.0)	274 (1.1)	15 (0.7)	266 (1.8)	26 (1.0)	252 (1.3)	8 (0.6)	240 (2.3)	10 (0.7)	236 (2.3)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	34 (1.5)	274 (1.5)	15 (0.6)	266 (2.0)	23 (1.1)	248 (1.7)	17 (1.1)	243 (1.8)	10 (0.8)	243 (2.5)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	40 (1.5)	280 (2.1)	16 (0.8)	267 (1.7)	27 (1.0)	251 (1.3)	10 (0.7)	242 (2.3)	7 (0.5)	248 (2.6)
West Virginia	27 (1.5)	270 (1.5)	17 (0.8)	263 (1.6)	38 (1.3)	250 (1.1)	12 (0.9)	241 (1.7)	6 (0.5)	240 (3.0)
Wisconsin	34 (1.4)	284 (1.8)	23 (0.9)	278 (1.5)	31 (1.1)	269 (1.4)	5 (0.5)	253 (3.3)	6 (0.5)	254 (3.0)
Wyoming	43 (1.0)	280 (0.9)	23 (0.8)	276 (1.1)	23 (1.0)	263 (1.3)	5 (0.4)	255 (2.3)	6 (0.5)	246 (2.7)
TERRITORIES										
Guam	27 (1.1)	243 (1.4)	11 (0.8)	248 (2.7)	30 (1.2)	227 (1.6)	10 (0.7)	219 (2.7)	22 (1.3)	223 (1.8)
Virgin Islands	21 (1.4)	220 (1.4)	10 (0.7)	228 (2.8)	29 (1.5)	220 (1.6)	15 (1.0)	211 (2.8)	24 (1.3)	216 (1.9)

The percentages for parents' highest level of education may not add to 100 percent because some students responded "I don't know." (xxx) Did not participate in the 1990 Trial State Assessment.

TABLE 2.13 | Achievement Levels by Parents' Highest Level of Education

PUBLIC SCHOOLS	Grade 4 - 1992									
	Percentage of Students At or Above Advanced					Percentage of Students At or Above Proficient				
	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know
NATION	4 (0.7)	2 (0.7)	1 (0.5)	0 (0.3)	1 (0.3)	25 (2.0)	21 (2.5)	12 (1.8)	5 (1.9)	12 (1.1)
Northeast	6 (1.8)	6 (2.7)	1 (1.3)	*** (***)	1 (0.7)	33 (4.8)	29 (4.7)	12 (4.5)	*** (***)	15 (2.5)
Southeast	3 (0.7)	0 (0.4)	0 (0.0)	1 (1.1)	0 (0.5)	16 (1.7)	17 (5.3)	6 (2.6)	5 (2.7)	7 (0.9)
Central	4 (1.1)	2 (1.4)	1 (1.4)	*** (***)	1 (1.1)	27 (2.5)	21 (5.1)	18 (3.9)	*** (***)	14 (2.2)
West	4 (1.8)	1 (1.3)	0 (0.5)	0 (0.9)	1 (0.6)	23 (3.9)	19 (4.0)	14 (4.1)	5 (2.6)	12 (2.5)
STATES										
Alabama	1 (0.5)	1 (0.7)	0 (0.4)	0 (0.2)	0 (0.2)	13 (2.2)	15 (2.2)	8 (1.6)	7 (2.2)	8 (1.3)
Arizona	1 (0.5)	3 (1.2)	1 (0.6)	1 (1.2)	1 (0.4)	19 (1.6)	21 (3.1)	10 (2.1)	5 (2.0)	9 (1.2)
Arkansas	1 (0.6)	1 (0.6)	0 (0.3)	0 (0.0)	0 (0.3)	15 (1.6)	14 (2.5)	8 (1.4)	4 (2.0)	7 (1.0)
California	3 (1.0)	1 (1.1)	0 (0.3)	1 (0.4)	1 (0.4)	18 (1.9)	17 (3.0)	7 (2.0)	5 (2.0)	10 (1.4)
Colorado	4 (0.8)	3 (1.6)	1 (0.6)	1 (1.0)	1 (0.4)	26 (1.6)	23 (3.5)	9 (2.2)	5 (2.0)	12 (1.3)
Connecticut	6 (1.1)	3 (1.5)	2 (1.0)	1 (1.6)	2 (0.6)	34 (2.2)	25 (4.1)	15 (2.5)	7 (3.7)	19 (1.6)
Delaware	5 (0.9)	0 (1.2)	0 (0.4)	0 (0.0)	1 (0.5)	27 (2.1)	15 (5.1)	11 (2.0)	3 (2.6)	11 (1.5)
Dist. Columbia	2 (0.5)	1 (0.8)	0 (0.3)	0 (0.0)	0 (0.1)	9 (0.7)	7 (2.4)	2 (0.9)	1 (1.7)	3 (0.6)
Florida	3 (0.8)	2 (1.6)	0 (0.1)	0 (0.0)	0 (0.2)	19 (2.4)	23 (3.2)	7 (1.9)	3 (2.3)	9 (1.2)
Georgia	3 (0.9)	2 (1.1)	0 (0.3)	0 (0.7)	1 (0.2)	24 (2.2)	20 (3.2)	9 (2.0)	6 (2.4)	11 (1.4)
Hawaii	2 (0.6)	2 (1.2)	1 (0.5)	0 (0.0)	1 (0.4)	20 (1.7)	20 (3.2)	9 (1.6)	7 (5.0)	13 (1.2)
Idaho	2 (0.8)	1 (1.0)	0 (0.4)	0 (0.5)	1 (0.3)	23 (2.0)	22 (3.2)	10 (2.2)	3 (1.7)	12 (1.0)
Indiana	3 (0.7)	2 (1.6)	1 (0.5)	0 (0.4)	1 (0.5)	24 (2.0)	25 (4.1)	13 (1.9)	6 (3.2)	10 (1.1)
Iowa	5 (0.8)	4 (1.7)	2 (0.9)	0 (0.0)	2 (0.5)	35 (2.2)	34 (3.2)	19 (2.7)	10 (4.1)	21 (1.8)
Kentucky	3 (1.0)	2 (1.5)	1 (0.8)	0 (0.2)	1 (0.5)	21 (2.0)	20 (3.2)	10 (1.4)	6 (1.7)	8 (1.4)
Louisiana	1 (0.6)	1 (1.3)	0 (0.5)	0 (0.0)	0 (0.1)	11 (1.7)	14 (4.0)	5 (1.7)	3 (1.4)	6 (0.9)
Maine	5 (1.0)	4 (1.8)	1 (0.8)	0 (0.0)	2 (0.8)	40 (2.7)	40 (4.2)	20 (3.0)	9 (4.9)	19 (2.0)
Maryland	4 (0.7)	4 (1.6)	1 (0.8)	1 (1.0)	1 (0.5)	26 (1.7)	26 (3.3)	12 (1.8)	5 (2.4)	13 (1.4)
Massachusetts	5 (1.0)	3 (1.4)	1 (0.8)	0 (0.0)	1 (0.5)	34 (1.8)	27 (4.8)	16 (2.4)	4 (3.8)	14 (1.5)
Michigan	3 (0.8)	1 (0.8)	0 (0.2)	0 (0.0)	1 (0.7)	29 (2.3)	22 (3.2)	9 (1.7)	6 (3.2)	13 (2.0)
Minnesota	6 (1.1)	2 (1.4)	1 (0.6)	*** (***)	2 (0.5)	37 (2.3)	29 (3.9)	18 (3.2)	*** (***)	21 (1.3)
Mississippi	1 (0.3)	0 (0.0)	0 (0.4)	0 (0.3)	0 (0.2)	9 (1.3)	10 (3.4)	6 (1.4)	2 (1.2)	4 (0.7)
Missouri	3 (0.7)	2 (1.1)	1 (0.7)	0 (0.0)	1 (0.5)	28 (2.4)	23 (3.7)	15 (2.1)	9 (2.7)	12 (1.8)
Nebraska	4 (1.0)	3 (1.8)	3 (1.0)	*** (***)	1 (0.5)	28 (2.9)	29 (3.5)	20 (2.9)	*** (***)	16 (1.7)
New Hampshire	5 (1.1)	2 (1.0)	1 (1.1)	1 (1.7)	2 (0.5)	34 (2.5)	27 (4.7)	16 (2.8)	13 (4.6)	19 (2.0)
New Jersey	5 (1.1)	3 (2.6)	2 (1.0)	0 (0.0)	2 (0.9)	35 (2.4)	27 (5.2)	14 (2.5)	6 (5.8)	16 (1.9)
New Mexico	2 (1.1)	1 (1.0)	0 (0.4)	0 (0.0)	0 (0.3)	19 (2.1)	16 (4.7)	9 (1.8)	4 (1.6)	6 (1.2)
New York	4 (0.6)	2 (1.3)	1 (0.5)	0 (0.0)	1 (0.5)	26 (2.5)	22 (4.7)	8 (2.1)	10 (4.7)	11 (1.6)
North Carolina	3 (0.8)	2 (1.0)	1 (0.4)	0 (0.0)	1 (0.2)	20 (1.5)	19 (2.5)	8 (1.4)	4 (2.2)	8 (1.0)
North Dakota	3 (0.6)	2 (1.3)	2 (1.0)	*** (***)	1 (0.4)	30 (1.9)	32 (4.1)	19 (2.9)	*** (***)	14 (1.6)
Ohio	4 (0.6)	1 (0.9)	0 (0.4)	0 (0.0)	1 (0.4)	27 (2.3)	17 (3.2)	12 (2.3)	7 (2.7)	10 (1.3)
Oklahoma	2 (0.8)	2 (1.4)	0 (0.0)	0 (1.1)	1 (0.4)	20 (2.0)	18 (2.5)	9 (2.0)	5 (3.0)	11 (1.4)
Pennsylvania	4 (1.1)	5 (1.9)	1 (0.9)	0 (0.4)	2 (0.5)	30 (2.4)	38 (4.4)	17 (2.3)	8 (3.0)	14 (1.6)
Rhode Island	3 (0.9)	1 (1.1)	0 (0.3)	0 (0.0)	1 (0.5)	22 (2.0)	15 (3.6)	6 (2.0)	3 (1.6)	10 (1.3)
South Carolina	3 (0.6)	2 (1.2)	0 (0.3)	0 (0.0)	0 (0.3)	22 (1.8)	16 (3.0)	6 (1.2)	6 (2.8)	8 (1.5)
Tennessee	2 (0.5)	1 (0.7)	0 (0.2)	0 (0.0)	0 (0.1)	18 (2.0)	11 (2.9)	5 (1.3)	3 (1.6)	6 (0.9)
Texas	3 (1.0)	2 (1.4)	1 (0.9)	0 (0.9)	1 (0.5)	22 (2.6)	23 (3.9)	11 (2.7)	9 (2.0)	11 (1.5)
Utah	3 (0.6)	2 (0.8)	1 (0.4)	0 (0.0)	1 (0.4)	27 (1.9)	23 (3.1)	13 (2.3)	7 (3.8)	14 (1.1)
Virginia	6 (1.3)	2 (1.4)	1 (0.6)	0 (0.0)	1 (0.6)	30 (2.6)	15 (2.7)	10 (1.8)	4 (1.7)	13 (1.6)
West Virginia	3 (0.9)	1 (1.1)	0 (0.3)	0 (0.0)	1 (0.4)	21 (1.9)	17 (2.6)	9 (1.5)	4 (1.5)	9 (1.3)
Wisconsin	5 (1.0)	2 (1.7)	2 (1.0)	5 (4.3)	1 (0.5)	33 (2.6)	38 (4.2)	21 (2.5)	15 (5.7)	17 (1.7)
Wyoming	2 (0.6)	1 (0.8)	1 (0.8)	0 (0.6)	1 (0.4)	25 (2.1)	29 (3.7)	16 (2.5)	8 (2.6)	13 (1.1)
TERRITORY										
Guam	0 (0.4)	3 (1.5)	0 (0.4)	0 (0.0)	0 (0.2)	5 (1.0)	14 (3.1)	3 (1.2)	3 (2.4)	5 (0.8)

The standard errors of the estimated percentages appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. Descriptions of mathematics proficiency at the three achievement levels are found in Chapter One. ***Sample size insufficient to permit reliable estimate. There were fewer than 62 students.

TABLE 2.13 | Achievement Levels by Parents' Highest Level of Education (continued)

PUBLIC SCHOOLS	Grade 4 - 1992									
	Percentage of Students At or Above Basic					Percentage of Students Below Basic				
	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know
NATION	68 (1.4)	68 (3.3)	54 (2.8)	40 (5.2)	52 (1.5)	32 (1.4)	32 (3.3)	46 (2.8)	60 (5.2)	48 (1.5)
Northeast	73 (3.5)	74 (7.7)	57 (8.5)	*** (***)	56 (3.3)	27 (3.5)	26 (7.7)	43 (8.5)	*** (***)	44 (3.3)
Southeast	56 (3.1)	58 (6.1)	42 (4.6)	34 (7.8)	42 (2.2)	44 (3.1)	42 (6.1)	58 (4.6)	66 (7.8)	58 (2.2)
Central	74 (3.2)	80 (8.1)	61 (5.2)	*** (***)	57 (4.1)	26 (3.2)	20 (8.1)	39 (5.2)	*** (***)	43 (4.1)
West	67 (2.6)	63 (5.2)	59 (5.1)	38(10.2)	52 (3.0)	33 (2.6)	37 (5.2)	41 (5.1)	62(10.2)	48 (3.0)
STATES										
Alabama	50 (3.3)	55 (3.8)	42 (3.2)	37 (4.1)	40 (3.0)	50 (3.3)	45 (3.8)	58 (3.2)	63 (4.1)	60 (3.0)
Arizona	63 (2.3)	70 (3.1)	51 (4.2)	40 (5.2)	49 (2.4)	37 (2.3)	30 (3.1)	49 (4.2)	60 (5.2)	51 (2.4)
Arkansas	53 (2.5)	58 (4.2)	48 (3.2)	33 (3.7)	46 (2.2)	47 (2.5)	42 (4.2)	52 (3.2)	67 (3.7)	54 (2.2)
California	59 (2.8)	62 (4.5)	40 (4.1)	30 (6.7)	41 (2.5)	41 (2.8)	38 (4.5)	60 (4.1)	70 (6.7)	59 (2.5)
Colorado	73 (1.8)	74 (2.7)	54 (3.7)	37 (4.7)	54 (1.8)	27 (1.8)	26 (2.7)	46 (3.7)	63 (4.7)	46 (1.8)
Connecticut	79 (1.4)	69 (4.4)	62 (4.0)	42 (4.5)	61 (2.6)	21 (1.4)	31 (4.4)	38 (4.0)	58 (4.5)	39 (2.6)
Delaware	65 (2.1)	63 (3.7)	53 (3.1)	30 (4.8)	50 (2.2)	35 (2.1)	37 (3.7)	47 (3.1)	70 (4.8)	50 (2.2)
Dist. Columbia	31 (1.5)	31 (4.2)	19 (2.7)	20 (4.6)	20 (1.5)	69 (1.5)	69 (4.2)	81 (2.7)	80 (4.6)	80 (1.5)
Florida	62 (3.2)	65 (4.0)	45 (3.2)	33 (3.4)	48 (2.3)	38 (3.2)	35 (4.0)	55 (3.2)	67 (3.4)	52 (2.3)
Georgia	63 (2.4)	69 (4.0)	45 (2.7)	37 (5.3)	51 (2.4)	37 (2.4)	31 (4.0)	55 (2.7)	63 (5.3)	49 (2.4)
Hawaii	61 (2.8)	65 (3.7)	39 (3.0)	37 (6.6)	52 (2.2)	39 (2.8)	35 (3.7)	61 (3.0)	63 (6.6)	48 (2.2)
Idaho	72 (2.0)	75 (4.1)	58 (3.7)	33 (5.7)	58 (2.0)	28 (2.0)	25 (4.1)	42 (3.7)	67 (5.7)	42 (2.0)
Indiana	70 (1.9)	76 (4.5)	57 (3.3)	47 (4.3)	54 (2.4)	30 (1.9)	24 (4.5)	43 (3.3)	53 (4.3)	46 (2.4)
Iowa	81 (1.7)	82 (3.2)	68 (2.9)	57 (5.0)	68 (2.1)	19 (1.7)	18 (3.2)	32 (2.9)	43 (5.0)	32 (2.1)
Kentucky	64 (2.7)	64 (3.9)	48 (2.6)	38 (3.9)	48 (1.9)	36 (2.7)	36 (3.9)	52 (2.6)	62 (3.9)	52 (1.9)
Louisiana	46 (2.7)	58 (3.7)	32 (2.9)	26 (5.0)	38 (2.7)	54 (2.7)	42 (3.7)	68 (2.9)	74 (5.0)	62 (2.7)
Maine	86 (1.7)	88 (2.8)	71 (3.2)	60 (7.3)	68 (2.4)	14 (1.7)	12 (2.8)	29 (3.2)	40 (7.3)	32 (2.4)
Maryland	65 (2.1)	68 (4.2)	47 (3.7)	37 (5.3)	50 (2.5)	35 (2.1)	32 (4.2)	53 (3.7)	63 (5.3)	50 (2.5)
Massachusetts	79 (1.6)	77 (3.7)	62 (2.9)	29 (7.4)	60 (2.3)	21 (1.6)	23 (3.7)	38 (2.9)	71 (7.4)	40 (2.3)
Michigan	70 (2.7)	71 (4.2)	57 (3.9)	42 (7.7)	54 (2.2)	30 (2.7)	29 (4.2)	43 (3.9)	58 (7.7)	46 (2.2)
Minnesota	81 (1.7)	78 (3.8)	65 (2.6)	*** (***)	66 (2.1)	19 (1.7)	22 (3.8)	35 (2.6)	*** (***)	34 (2.1)
Mississippi	42 (2.1)	53 (4.4)	34 (3.2)	27 (4.0)	33 (2.0)	58 (2.1)	47 (4.4)	66 (3.2)	73 (4.0)	67 (2.0)
Missouri	72 (2.3)	72 (3.0)	57 (3.5)	47 (4.1)	57 (2.1)	28 (2.3)	28 (3.0)	43 (3.5)	53 (4.1)	43 (2.1)
Nebraska	74 (2.1)	77 (2.9)	64 (4.0)	*** (***)	62 (2.2)	26 (2.1)	23 (2.9)	36 (4.0)	*** (***)	38 (2.2)
New Hampshire	81 (1.5)	82 (3.5)	67 (2.8)	49 (5.7)	67 (2.4)	19 (1.5)	18 (3.5)	33 (2.8)	51 (5.7)	33 (2.4)
New Jersey	78 (2.1)	77 (3.2)	63 (4.0)	50 (9.2)	60 (3.1)	22 (2.1)	23 (3.2)	37 (4.0)	50 (9.2)	40 (3.1)
New Mexico	63 (2.9)	68 (5.1)	45 (3.8)	37 (5.7)	44 (2.4)	37 (2.9)	32 (5.1)	55 (3.8)	63 (5.7)	56 (2.4)
New York	70 (2.1)	71 (4.5)	54 (3.5)	48 (5.6)	48 (2.3)	30 (2.1)	29 (4.5)	46 (3.5)	52 (5.6)	52 (2.3)
North Carolina	60 (2.2)	65 (3.9)	42 (2.9)	35 (4.1)	47 (2.4)	40 (2.2)	35 (3.9)	58 (2.9)	65 (4.1)	53 (2.4)
North Dakota	81 (1.5)	82 (4.7)	69 (3.2)	*** (***)	67 (2.4)	19 (1.5)	18 (4.7)	31 (3.2)	*** (***)	33 (2.4)
Ohio	70 (2.1)	66 (4.8)	57 (3.4)	39 (5.2)	50 (2.0)	30 (2.1)	34 (4.8)	43 (3.4)	61 (5.2)	50 (2.0)
Oklahoma	69 (2.2)	72 (3.1)	57 (3.4)	50 (5.9)	54 (2.1)	31 (2.2)	28 (3.1)	43 (3.4)	50 (5.9)	46 (2.1)
Pennsylvania	75 (2.5)	80 (2.7)	66 (2.8)	54 (7.3)	56 (2.7)	25 (2.5)	20 (2.7)	34 (2.8)	46 (7.3)	44 (2.7)
Rhode Island	68 (2.7)	65 (4.0)	49 (4.8)	35 (5.2)	47 (3.1)	32 (2.7)	35 (4.0)	51 (4.8)	65 (5.2)	53 (3.1)
South Carolina	59 (2.1)	62 (4.3)	43 (3.3)	38 (5.3)	41 (2.3)	41 (2.1)	38 (4.3)	57 (3.3)	62 (5.3)	59 (2.3)
Tennessee	60 (3.0)	54 (4.1)	42 (3.3)	39 (3.7)	43 (2.3)	41 (3.0)	46 (4.1)	58 (3.3)	61 (3.7)	57 (2.3)
Texas	65 (2.5)	72 (4.7)	55 (3.7)	51 (4.7)	51 (2.3)	35 (2.5)	28 (4.7)	45 (3.7)	49 (4.7)	49 (2.3)
Utah	76 (1.7)	77 (3.1)	61 (4.3)	43 (7.9)	60 (2.1)	24 (1.7)	23 (3.1)	39 (4.3)	57 (7.9)	40 (2.1)
Virginia	71 (2.1)	64 (4.0)	49 (3.0)	40 (5.7)	52 (2.3)	29 (2.1)	36 (4.0)	51 (3.0)	60 (5.7)	48 (2.3)
West Virginia	66 (2.1)	67 (3.4)	50 (2.6)	35 (4.3)	47 (2.4)	34 (2.1)	33 (3.4)	50 (2.6)	65 (4.3)	53 (2.4)
Wisconsin	79 (1.9)	84 (2.7)	70 (3.5)	61 (5.1)	66 (1.8)	21 (1.9)	16 (2.7)	30 (3.5)	39 (5.1)	34 (1.8)
Wyoming	76 (1.8)	82 (3.1)	68 (3.3)	59 (6.3)	62 (2.2)	24 (1.8)	18 (3.1)	32 (3.3)	41 (6.3)	38 (2.2)
TERRITORY										
Guam	29 (2.1)	49 (5.0)	22 (3.0)	20 (5.0)	28 (2.0)	71 (2.1)	51 (5.0)	78 (3.0)	80 (5.0)	72 (2.0)

When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. Descriptions of mathematics proficiency at the three achievement levels are found in Chapter One.

TABLE 2.13 | Achievement Levels by Parents' Highest Level of Education (continued)

	Grade 8 - 1992									
	Percentage of Students At or Above Advanced					Percentage of Students At or Above Proficient				
PUBLIC SCHOOLS	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know
NATION	6 (1.0)	3 (0.7)	1 (0.4)	1 (0.5)	1 (0.6)	36 (1.9)	24 (1.5)	13 (1.3)	8 (1.8)	11 (1.9)
Northeast	10 (2.7)	5 (2.1)	1 (1.4)	0 (0.5)	1 (2.3)	43 (5.4)	21 (4.2)	14 (3.7)	9 (4.7)	9 (3.7)
Southeast	3 (1.0)	1 (0.8)	1 (0.5)	0 (0.0)	0 (0.5)	26 (2.2)	19 (1.8)	9 (1.2)	6 (3.0)	9 (3.0)
Central	5 (1.8)	3 (1.3)	1 (0.7)	*** (***)	0 (0.4)	41 (4.0)	26 (2.0)	16 (3.5)	*** (***)	13 (3.9)
West	7 (2.1)	4 (1.8)	1 (0.5)	0 (0.0)	0 (0.5)	35 (3.5)	27 (3.2)	11 (2.8)	8 (3.2)	11 (2.9)
STATES										
Alabama	3 (0.9)	1 (0.5)	0 (0.2)	0 (0.1)	0 (0.0)	21 (2.3)	15 (2.0)	7 (1.1)	4 (1.4)	4 (1.8)
Arizona	3 (0.8)	2 (0.8)	0 (0.3)	0 (0.2)	0 (0.5)	31 (2.1)	20 (2.3)	10 (2.0)	5 (1.4)	5 (1.7)
Arkansas	2 (0.6)	1 (0.8)	0 (0.2)	0 (0.4)	0 (0.6)	20 (1.8)	17 (2.3)	8 (1.2)	6 (1.7)	6 (2.3)
California	6 (1.5)	1 (0.9)	1 (0.5)	1 (0.4)	0 (0.3)	32 (2.3)	21 (3.2)	10 (1.8)	5 (1.7)	8 (2.2)
Colorado	4 (0.8)	2 (0.7)	1 (0.5)	0 (0.3)	0 (0.2)	37 (1.9)	27 (2.5)	13 (1.5)	7 (2.1)	9 (2.1)
Connecticut	8 (1.3)	1 (0.7)	1 (0.5)	0 (0.3)	1 (0.8)	45 (1.4)	25 (3.6)	15 (1.5)	8 (2.6)	10 (2.1)
Delaware	5 (0.8)	3 (0.8)	1 (0.4)	1 (1.2)	0 (0.3)	30 (2.3)	20 (3.0)	9 (1.3)	7 (2.5)	6 (3.2)
Dist. Columbia	2 (0.7)	0 (0.0)	0 (0.2)	0 (0.0)	0 (0.0)	11 (1.6)	4 (1.5)	2 (1.1)	3 (2.2)	3 (1.3)
Florida	3 (0.8)	1 (0.8)	0 (0.4)	0 (0.0)	1 (0.7)	26 (2.2)	20 (2.2)	10 (1.5)	7 (1.9)	7 (1.7)
Georgia	3 (0.7)	1 (0.4)	1 (0.5)	0 (0.0)	0 (0.3)	27 (2.3)	19 (2.4)	8 (1.1)	5 (1.4)	6 (2.1)
Hawaii	4 (0.7)	1 (0.8)	1 (0.4)	1 (1.6)	1 (0.5)	25 (1.9)	23 (2.8)	8 (1.3)	7 (2.5)	9 (1.7)
Idaho	4 (0.7)	3 (0.9)	1 (0.8)	0 (0.6)	1 (1.3)	34 (1.6)	30 (2.5)	18 (1.9)	9 (2.6)	10 (3.0)
Indiana	7 (1.1)	2 (0.8)	1 (0.4)	1 (0.5)	1 (0.7)	39 (2.2)	28 (2.8)	12 (1.2)	7 (2.3)	8 (2.8)
Iowa	8 (1.2)	3 (0.8)	2 (0.7)	0 (0.0)	0 (1.1)	49 (1.7) >	40 (2.8)	22 (1.7)	9 (3.2)	18 (3.2)
Kentucky	5 (0.9)	1 (0.7)	0 (0.2)	0 (0.1)	1 (1.0)	32 (2.4) >	20 (2.3)	9 (1.3)	5 (1.4)	6 (2.0)
Louisiana	1 (0.6)	0 (0.1)	0 (0.2)	0 (0.0)	0 (0.0)	16 (2.2)	12 (1.6)	5 (1.0)	2 (1.0)	4 (1.7)
Maine	6 (1.0)	4 (1.3)	1 (0.8)	0 (0.9)	1 (1.7)	44 (2.8)	31 (3.0)	17 (2.2)	11 (3.2)	16 (3.7)
Maryland	7 (1.1)	2 (0.9)	1 (0.4)	0 (0.0)	0 (0.6)	37 (2.1)	24 (3.3)	10 (1.6)	8 (2.6)	7 (3.0)
Massachusetts	6 (1.0)	1 (0.7)	1 (0.3)	0 (0.7)	0 (0.0)	41 (2.0)	24 (2.6)	15 (1.9)	5 (1.8)	8 (2.6)
Michigan	6 (1.0)	2 (0.7)	0 (0.2)	0 (0.3)	1 (0.6)	34 (3.0)	24 (2.4)	13 (1.3)	6 (2.6)	10 (3.2)
Minnesota	8 (1.0)	5 (1.1)	2 (0.6)	0 (0.0)	2 (1.5)	47 (1.7) >	38 (2.3)	22 (2.5)	9 (3.8)	21 (4.2)
Mississippi	1 (0.4)	0 (0.4)	0 (0.1)	0 (0.4)	0 (0.0)	13 (1.3)	11 (2.1)	5 (1.0)	2 (0.9)	4 (1.7)
Missouri	5 (0.9)	2 (0.8)	1 (0.3)	1 (0.6)	1 (0.6)	35 (2.3)	26 (2.4)	15 (1.6)	8 (2.4)	8 (2.2)
Nebraska	6 (0.9)	3 (1.1)	1 (0.7)	0 (0.5)	0 (0.4)	44 (2.1)	33 (3.1)	18 (2.6)	5 (2.1)	10 (2.5)
New Hampshire	6 (1.2)	3 (1.0)	1 (0.4)	0 (0.0)	1 (0.8)	42 (2.2)	30 (2.7)	17 (2.0)	9 (2.5)	14 (3.4)
New Jersey	7 (1.2)	3 (1.0)	1 (0.5)	1 (1.0)	0 (0.9)	40 (2.1)	28 (2.9)	14 (2.9)	8 (2.4)	11 (3.3)
New Mexico	3 (0.8)	1 (0.5)	0 (0.3)	0 (0.1)	0 (0.0)	25 (2.2)	15 (1.9)	5 (1.0)	6 (1.9)	5 (2.3)
New York	7 (1.1)	2 (0.8)	1 (0.5)	1 (0.7)	1 (0.7)	35 (2.3)	25 (2.6)	14 (2.5)	6 (2.1)	8 (2.2)
North Carolina	3 (0.7)	1 (0.7)	0 (0.3)	0 (0.0)	1 (0.7)	26 (1.8)	17 (1.6)	6 (1.2)	4 (1.6)	5 (2.1)
North Dakota	5 (0.8)	3 (1.0)	1 (0.4)	2 (1.9)	2 (1.2)	44 (2.0)	35 (3.3)	20 (2.5)	11 (4.3)	22 (5.4)
Ohio	5 (0.9)	2 (0.8)	0 (0.4)	0 (0.0)	0 (0.4)	36 (2.5)	24 (2.1)	12 (1.4)	3 (1.7)	7 (4.8)
Oklahoma	3 (0.6)	1 (0.7)	0 (0.3)	0 (0.3)	0 (0.8)	30 (1.9)	24 (2.3)	12 (1.6)	9 (2.9)	9 (3.1)
Pennsylvania	5 (1.2)	3 (1.4)	2 (0.5)	0 (0.3)	1 (1.2)	39 (2.1)	25 (2.3)	16 (1.6)	9 (2.4)	10 (3.1)
Rhode Island	3 (0.6)	1 (0.7)	1 (0.5)	1 (0.6)	0 (0.0)	30 (2.3)	21 (3.5)	9 (1.9)	8 (2.1)	4 (1.8)
South Carolina	5 (1.1)	1 (0.6)	0 (0.2)	1 (0.8)	0 (0.6)	30 (1.9)	21 (2.2)	8 (1.4)	7 (1.6)	8 (2.6)
Tennessee	3 (1.0)	1 (0.5)	0 (0.3)	0 (0.0)	0 (0.0)	23 (2.5)	18 (2.7)	8 (1.2)	5 (1.4)	8 (3.1)
Texas	9 (1.5)	3 (0.8)	0 (0.3)	0 (0.5)	1 (0.7)	38 (2.5)	25 (2.5)	9 (1.9)	6 (1.3)	8 (2.3)
Utah	4 (0.8)	3 (0.8)	0 (0.1)	1 (1.3)	2 (1.1)	33 (1.4)	28 (2.2)	13 (2.0)	8 (4.9)	16 (3.4)
Virginia	7 (1.2)	1 (0.7)	0 (0.2)	0 (0.0)	1 (0.5)	38 (2.3)	22 (2.1)	10 (1.5)	6 (2.4)	7 (2.5)
West Virginia	2 (0.6)	1 (0.4)	0 (0.3)	0 (0.3)	0 (0.0)	22 (2.1)	18 (2.0)	7 (0.9)	4 (1.0)	3 (1.2)
Wisconsin	7 (1.0)	3 (0.9)	2 (0.8)	1 (1.1)	2 (1.2)	43 (2.1)	36 (2.0)	21 (1.7)	11 (3.8)	14 (3.0)
Wyoming	4 (0.9)	2 (0.9)	1 (0.4)	0 (0.4)	1 (1.2)	34 (1.2)	29 (3.0)	16 (1.8)	10 (3.3)	12 (3.5)
TERRITORIES										
Guam	1 (0.5)	1 (0.6)	0 (0.3)	1 (0.8)	1 (0.5)	13 (1.6)	9 (2.0)	4 (0.9)	4 (1.8)	4 (1.1)
Virgin Islands	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.8)	2 (1.5)	0 (0.5)	0 (0.2)	0 (0.4)

When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. Descriptions of mathematics proficiency at the three achievement levels are found in Chapter One. »The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

TABLE 2.13 | Achievement Levels by Parents' Highest Level of Education (continued)

PUBLIC SCHOOLS	Grade 8 - 1992									
	Percentage of Students At or Above Basic					Percentage of Students Below Basic				
	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know
NATION	74 (1.4)	67 (1.9)	51 (2.2)	39 (3.3)	43 (2.5)	26 (1.4)	33 (1.9)	49 (2.2)	61 (3.3)	57 (2.5)
Northeast	73 (3.9)	62 (6.0)	52 (7.2)	35 (5.8)	41 (6.5)	27 (3.9)	38 (6.0)	48 (7.2)	65 (5.8)	59 (6.5)
Southeast	67 (2.9)	61 (3.1)	42 (2.2)	37 (7.3)	40 (6.1)	33 (2.9)	39 (3.1)	58 (2.2)	63 (7.3)	60 (6.1)
Central	79 (3.1)	70 (3.7)	63 (3.9)	*** (***)	55 (6.1)	21 (3.1)	30 (3.7)	37 (3.9)	*** (***)	45 (6.1)
West	75 (2.3)	71 (5.0)	48 (4.1)	40 (3.8)	40 (3.4)	25 (2.3)	29 (5.0)	52 (4.1)	60 (3.8)	60 (3.4)
STATES										
Alabama	55 (2.7)	53 (3.7)	37 (2.5)	28 (3.1)	29 (4.3)	45 (2.7)	47 (3.7)	63 (2.5)	72 (3.1)	71 (4.3)
Arizona	76 (2.1)	70 (2.1)	51 (3.5)	37 (3.9)	41 (3.7)	24 (2.1)	30 (2.1)	49 (3.5)	63 (3.9)	59 (3.7)
Arkansas	61 (2.7)	60 (2.5)	42 (2.2)	37 (3.6)	37 (5.3)	39 (2.7)	40 (2.5)	58 (2.2)	63 (3.6)	63 (5.3)
California	71 (1.9)	63 (2.5)	45 (3.5)	32 (4.0)	34 (3.8)	29 (1.9)	37 (2.5)	55 (3.5)	68 (4.0)	66 (3.8)
Colorado	80 (1.4)	76 (1.7)	57 (2.6)	43 (4.2)	46 (3.9)	20 (1.4)	24 (1.7)	43 (2.6)	57 (4.2)	54 (3.9)
Connecticut	83 (1.4)	71 (2.3)	56 (2.5)	36 (4.5)	45 (4.0)	17 (1.4)	29 (2.3)	44 (2.5)	64 (4.5)	55 (4.0)
Delaware	69 (1.6)	66 (3.5)	44 (2.9)	44 (6.7)	40 (5.3)	31 (1.6)	34 (3.5)	56 (2.9)	56 (6.7)	60 (5.3)
Dist. Columbia	37 (2.1)	33 (2.8)	16 (2.0)	17 (4.6)	19 (3.1)	63 (2.1)	67 (2.8)	84 (2.0)	83 (4.6)	81 (3.1)
Florida	64 (2.0)	63 (3.2)	45 (2.4)	38 (3.8)	38 (4.7)	36 (2.0)	37 (3.2)	55 (2.4)	62 (3.8)	62 (4.7)
Georgia	67 (2.4)	62 (2.9)	43 (2.4)	37 (4.1)	36 (3.7)	33 (2.4)	38 (2.9)	57 (2.4)	63 (4.1)	64 (3.7)
Hawaii	62 (1.9)	63 (2.9)	39 (2.5)	36 (4.7)	41 (3.1)	38 (1.9)	37 (2.9)	61 (2.5)	64 (4.7)	59 (3.1)
Idaho	81 (1.7)	77 (1.9)	68 (3.0)	46 (4.3)	48 (4.5)	19 (1.7)	23 (1.9)	32 (3.0)	54 (4.3)	52 (4.5)
Indiana	78 (1.8)	75 (2.4)	57 (2.9)	42 (4.1)	41 (5.9)	22 (1.8)	25 (2.4)	43 (2.9)	58 (4.1)	59 (5.9)
Iowa	88 (1.4)	85 (1.7)	74 (2.1)	64 (5.6)	63 (5.1)	12 (1.4)	15 (1.7)	26 (2.1)	36 (5.6)	37 (5.1)
Kentucky	74 (1.6) >	68 (2.2)	50 (2.5)	38 (2.7)	34 (4.5)	26 (1.6) <	32 (2.2)	50 (2.5)	62 (2.7)	66 (4.5)
Louisiana	51 (3.0)	56 (2.6)	32 (2.2)	26 (3.7)	28 (4.0)	49 (3.0)	44 (2.6)	68 (2.2)	74 (3.7)	72 (4.0)
Maine	87 (1.6)	82 (2.5)	67 (1.8)	54 (4.4)	64 (4.8)	13 (1.6)	18 (2.5)	33 (1.8)	46 (4.4)	36 (4.8)
Maryland	73 (1.8)	63 (2.3)	43 (2.3)	30 (5.0)	39 (5.0)	27 (1.8)	37 (2.3)	57 (2.3)	70 (5.0)	61 (5.0)
Massachusetts	80 (1.9)	72 (2.5)	58 (2.6)	40 (4.9)	37 (3.7)	20 (1.9)	28 (2.5)	42 (2.6)	60 (4.9)	63 (3.7)
Michigan	73 (2.2)	70 (2.6)	53 (2.6)	43 (4.4)	44 (5.0)	27 (2.2)	30 (2.6)	47 (2.6)	57 (4.4)	56 (5.0)
Minnesota	86 (1.2)	83 (2.2)	67 (3.0)	52 (8.1)	63 (4.3)	14 (1.2)	17 (2.2)	33 (3.0)	48 (8.1)	37 (4.3)
Mississippi	48 (2.2)	51 (3.1)	30 (2.3)	24 (2.2)	23 (3.7)	52 (2.2)	49 (3.1)	70 (2.3)	76 (2.2)	77 (3.7)
Missouri	78 (1.7)	75 (2.0)	60 (2.5)	47 (3.6)	48 (4.7)	22 (1.7)	25 (2.0)	40 (2.5)	53 (3.6)	52 (4.7)
Nebraska	85 (1.5)	79 (2.8)	66 (2.8)	44 (6.2)	55 (5.3)	15 (1.5)	21 (2.8)	34 (2.8)	56 (6.2)	45 (5.3)
New Hampshire	86 (1.3)	82 (2.0)	66 (1.5)	58 (5.2)	60 (4.0)	14 (1.3)	18 (2.0)	34 (1.5)	42 (5.2)	40 (4.0)
New Jersey	78 (2.6)	73 (3.3)	56 (3.3)	47 (4.7)	45 (4.9)	22 (2.6)	27 (3.3)	44 (3.3)	53 (4.7)	55 (4.9)
New Mexico	71 (2.0)	62 (2.6)	41 (2.1)	35 (4.1)	36 (3.5)	29 (2.0)	38 (2.6)	59 (2.1)	65 (4.1)	64 (3.5)
New York	75 (2.0)	70 (3.9)	53 (3.7)	36 (5.4)	34 (5.1)	25 (2.0)	30 (3.9)	47 (3.7)	64 (5.4)	66 (5.1)
North Carolina	68 (1.8)	62 (2.9)	39 (2.2)	32 (3.4)	33 (4.7)	32 (1.8)	38 (2.9)	61 (2.2)	68 (3.4)	67 (4.7)
North Dakota	88 (1.0)	86 (2.6)	69 (3.1)	54 (8.7)	73 (4.5)	12 (1.0)	14 (2.6)	31 (3.1)	46 (8.7)	27 (4.5)
Ohio	75 (1.9)	71 (2.6)	57 (3.4)	35 (3.8)	47 (7.7)	25 (1.9)	29 (2.6)	43 (3.4)	65 (3.8)	53 (7.7)
Oklahoma	76 (2.2)	71 (2.8)	53 (3.6)	50 (4.7)	45 (5.4)	24 (2.2)	29 (2.8)	47 (3.6)	50 (4.7)	55 (5.4)
Pennsylvania	78 (1.7)	73 (2.8)	59 (2.1)	44 (4.6)	44 (5.2)	22 (1.7)	27 (2.8)	41 (2.1)	56 (4.6)	56 (5.2)
Rhode Island	75 (1.8)	72 (3.3)	51 (2.8)	35 (3.7)	30 (4.2)	25 (1.8)	28 (3.3)	49 (2.8)	65 (3.7)	70 (4.2)
South Carolina	65 (2.1)	67 (2.5)	39 (2.4)	39 (3.5)	39 (4.2)	35 (2.1)	33 (2.5)	61 (2.4)	61 (3.5)	61 (4.2)
Tennessee	63 (2.3)	63 (2.6)	44 (2.6)	36 (3.6)	35 (5.6)	37 (2.3)	37 (2.6)	56 (2.6)	64 (3.6)	65 (5.6)
Texas	75 (2.2)	69 (2.2)	47 (2.8)	40 (2.8)	35 (2.9)	25 (2.2)	31 (2.2)	53 (2.8)	60 (2.8)	65 (2.9)
Utah	79 (1.6)	79 (1.8)	55 (3.4)	48 (6.0)	50 (5.4)	21 (1.6)	21 (1.8)	45 (3.4)	52 (6.0)	50 (5.4)
Virginia	78 (1.7)	69 (2.8)	45 (2.7)	40 (4.6)	45 (4.5)	22 (1.7)	31 (2.8)	55 (2.7)	60 (4.6)	55 (4.5)
West Virginia	68 (2.2)	68 (2.6)	44 (2.1)	32 (2.8)	28 (4.0)	32 (2.2)	32 (2.6)	56 (2.1)	68 (2.8)	72 (4.0)
Wisconsin	84 (2.1)	83 (1.9)	69 (2.9)	49 (5.9)	51 (5.7)	16 (2.1)	17 (1.9)	31 (2.9)	51 (5.9)	49 (5.7)
Wyoming	80 (1.2)	78 (2.9)	65 (1.9)	53 (5.8)	55 (3.8)	20 (1.2)	22 (2.9)	35 (1.9)	47 (5.8)	45 (3.8)
TERRITORIES										
Guam	43 (2.7)	41 (3.6)	24 (2.4)	17 (3.4)	19 (2.6)	57 (2.7)	59 (3.6)	76 (2.4)	83 (3.4)	81 (2.6)
Virgin Islands	15 (1.7)	22 (4.3)	11 (1.6)	11 (2.4)	10 (1.9)	85 (1.7)	78 (4.3)	89 (1.6)	89 (2.4)	90 (1.9)

When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. Descriptions of mathematics proficiency at the three achievement levels are found in Chapter One.

TABLE 2.13 | Achievement Levels by Parents' Highest Level of Education (continued)

PUBLIC SCHOOLS	Grade 8 - 1990									
	Percentage of Students At or Above Advanced					Percentage of Students At or Above Proficient				
	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know
NATION	4 (0.9)	3 (0.9)	0 (0.4)	0 (0.1)	0 (0.2)	30 (2.0)	20 (2.6)	12 (1.4)	4 (1.4)	7 (2.1)
Northeast	5 (1.6)	2 (2.4)	1 (0.7)	*** (***)	*** (***)	38 (4.2)	21 (7.3)	14 (2.9)	*** (***)	*** (***)
Southeast	4 (1.2)	1 (1.1)	1 (1.1)	0 (0.0)	0 (0.0)	30 (4.5)	16 (3.4)	7 (2.4)	2 (1.6)	4 (2.2)
Central	3 (1.7)	3 (2.0)	0 (0.0)	*** (***)	*** (***)	24 (3.4)	23 (5.0)	17 (3.7)	*** (***)	*** (***)
West	4 (1.2)	5 (1.9)	0 (0.3)	0 (0.4)	0 (0.0)	29 (3.7)	20 (3.7)	8 (2.4)	6 (3.0)	7 (3.4)
STATES										
Alabama	3 (0.6)	1 (0.4)	0 (0.3)	0 (0.3)	0 (0.0)	20 (1.7)	13 (1.5)	7 (1.2)	3 (1.5)	5 (2.0)
Arizona	3 (0.8)	2 (0.7)	0 (0.4)	0 (0.0)	0 (0.5)	26 (2.2)	18 (2.1)	8 (1.3)	4 (1.7)	6 (1.8)
Arkansas	2 (0.7)	1 (0.7)	0 (0.2)	0 (0.3)	0 (0.2)	23 (1.7)	16 (1.8)	6 (1.2)	3 (1.0)	4 (1.5)
California	4 (0.9)	1 (0.7)	0 (0.2)	0 (0.4)	1 (0.5)	27 (2.2)	17 (2.1)	6 (1.3)	5 (1.3)	7 (1.3)
Colorado	4 (0.8)	2 (0.7)	1 (0.4)	0 (0.4)	0 (0.0)	31 (1.7)	22 (1.8)	11 (1.9)	5 (1.8)	8 (3.0)
Connecticut	7 (0.7)	2 (0.8)	1 (0.5)	0 (0.0)	0 (0.3)	40 (1.5)	23 (2.3)	12 (1.5)	3 (1.6)	9 (2.3)
Delaware	5 (1.2)	1 (0.7)	1 (0.3)	0 (0.1)	0 (0.0)	32 (2.1)	18 (2.4)	9 (1.0)	3 (1.3)	6 (2.1)
Dist. Columbia	2 (0.4)	0 (0.4)	0 (0.1)	0 (0.0)	0 (0.0)	8 (1.5)	3 (1.4)	1 (0.6)	0 (0.9)	2 (1.0)
Florida	3 (0.8)	1 (0.8)	1 (0.4)	0 (0.0)	1 (0.8)	24 (1.8)	17 (1.7)	8 (1.1)	4 (1.9)	7 (1.8)
Georgia	5 (1.3)	3 (0.7)	1 (0.5)	0 (0.3)	0 (0.7)	29 (2.6)	20 (1.8)	9 (1.1)	5 (1.5)	9 (2.4)
Hawaii	4 (0.7)	2 (0.8)	1 (0.4)	1 (1.5)	0 (0.1)	23 (1.6)	17 (2.6)	7 (1.1)	7 (2.6)	7 (1.6)
Idaho	3 (0.6)	1 (0.5)	1 (0.4)	0 (0.1)	0 (0.6)	31 (2.6)	24 (2.5)	13 (2.2)	8 (2.8)	10 (3.3)
Indiana	6 (1.2)	3 (1.1)	1 (0.3)	1 (0.9)	0 (0.8)	31 (2.4)	24 (2.0)	12 (1.8)	9 (2.2)	6 (2.5)
Iowa	6 (1.0)	4 (1.3)	1 (0.5)	1 (1.1)	2 (1.6)	39 (2.4)	34 (2.7)	20 (2.2)	11 (3.9)	19 (3.7)
Kentucky	3 (0.8)	2 (0.8)	1 (0.3)	0 (0.2)	1 (1.1)	23 (2.1)	22 (2.6)	9 (1.1)	4 (1.0)	5 (1.8)
Louisiana	2 (0.6)	0 (0.3)	0 (0.1)	0 (0.1)	1 (0.8)	13 (1.9)	10 (1.8)	4 (1.1)	2 (1.0)	4 (1.8)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	6 (1.2)	1 (0.8)	0 (0.3)	1 (0.8)	1 (0.4)	32 (1.9)	17 (2.1)	8 (1.2)	8 (2.1)	8 (1.9)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	5 (1.0)	2 (0.8)	0 (0.3)	0 (0.0)	0 (0.5)	30 (2.0)	20 (2.2)	10 (1.6)	6 (2.2)	11 (2.8)
Minnesota	6 (0.7)	3 (1.1)	1 (0.4)	0 (0.0)	1 (1.0)	39 (1.8)	33 (2.7)	15 (1.8)	9 (3.7)	14 (3.8)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	6 (1.3)	3 (1.4)	1 (0.6)	0 (0.0)	1 (1.6)	41 (2.2)	29 (2.7)	19 (2.1)	7 (3.1)	16 (3.8)
New Hampshire	6 (1.0)	2 (0.7)	1 (0.4)	0 (0.3)	0 (0.4)	36 (1.7)	24 (2.8)	14 (1.6)	7 (3.1)	11 (3.3)
New Jersey	7 (0.9)	3 (1.3)	1 (0.6)	1 (0.4)	1 (0.7)	38 (1.9)	22 (2.4)	14 (1.8)	7 (2.9)	9 (2.6)
New Mexico	3 (0.8)	1 (0.5)	0 (0.2)	0 (0.0)	0 (0.0)	26 (2.3)	14 (1.9)	4 (1.2)	4 (1.7)	1 (1.1)
New York	5 (0.8)	4 (1.0)	1 (0.5)	0 (0.0)	1 (1.3)	30 (2.0)	19 (2.7)	9 (1.5)	4 (1.8)	10 (2.4)
North Carolina	2 (1.0)	0 (0.3)	0 (0.2)	0 (0.0)	0 (0.3)	21 (1.8)	11 (1.6)	6 (0.9)	3 (1.1)	2 (1.5)
North Dakota	6 (1.2)	3 (1.0)	2 (1.5)	0 (0.0)	1 (1.0)	43 (2.5)	35 (4.3)	23 (3.6)	9 (5.6)	13 (4.4)
Ohio	4 (0.8)	2 (0.8)	1 (0.4)	0 (0.2)	0 (0.0)	29 (2.4)	20 (1.8)	12 (1.2)	6 (1.7)	3 (1.7)
Oklahoma	3 (0.9)	1 (0.5)	0 (0.3)	0 (1.0)	1 (1.2)	27 (2.3)	16 (1.9)	8 (1.2)	6 (2.3)	7 (3.4)
Pennsylvania	6 (0.9)	1 (0.7)	0 (0.2)	0 (0.0)	0 (0.0)	37 (2.5)	21 (2.2)	11 (1.6)	4 (2.1)	8 (2.5)
Rhode Island	4 (0.8)	1 (0.5)	1 (0.3)	0 (0.0)	0 (0.1)	30 (1.7)	20 (3.1)	9 (1.5)	6 (1.9)	5 (1.4)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	4 (1.0)	2 (0.7)	0 (0.2)	0 (0.3)	1 (0.6)	29 (1.8)	19 (2.6)	8 (1.3)	4 (1.1)	6 (2.3)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	9 (1.5)	1 (0.7)	1 (0.4)	0 (0.4)	1 (0.9)	36 (2.6)	19 (2.5)	8 (1.1)	4 (1.5)	9 (1.7)
West Virginia	3 (0.7)	2 (0.8)	0 (0.2)	0 (0.0)	0 (2.1)	24 (2.0)	16 (2.0)	6 (1.1)	3 (1.0)	4 (2.5)
Wisconsin	6 (0.9)	3 (1.0)	2 (0.7)	0 (0.3)	1 (0.7)	41 (2.5)	28 (2.9)	22 (1.8)	8 (2.4)	12 (2.7)
Wyoming	3 (0.7)	2 (0.8)	1 (0.4)	0 (0.0)	0 (0.8)	34 (1.5)	24 (2.0)	13 (1.4)	5 (2.7)	6 (2.0)
TERRITORIES										
Guam	1 (0.6)	1 (0.6)	0 (0.1)	1 (0.0)	0 (0.3)	8 (1.4)	10 (3.0)	4 (1.1)	1 (0.9)	3 (1.1)
Virgin Islands	0 (0.2)	1 (0.8)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.9)	2 (1.4)	1 (0.4)	0 (0.2)	0 (0.1)

When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. Descriptions of mathematics proficiency at the three achievement levels are found in Chapter One. (xxx) Did not participate in the 1990 Trial State Assessment.

TABLE 2.13 | Achievement Levels by Parents' Highest Level of Education (continued)

PUBLIC SCHOOLS	Grade 8 - 1990									
	Percentage of Students At or Above Basic					Percentage of Students Below Basic				
	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know
NATION	71 (1.8)	64 (2.2)	49 (2.1)	32 (3.8)	34 (3.7)	29 (1.8)	36 (2.2)	51 (2.1)	68 (3.8)	66 (3.7)
Northeast	81 (3.8)	64 (4.6)	54 (6.4)	*** (***)	*** (***)	19 (3.8)	36 (4.6)	47 (6.4)	*** (***)	*** (***)
Southeast	68 (3.8)	59 (5.7)	38 (5.7)	26 (6.2)	24 (7.3)	32 (3.8)	41 (5.7)	62 (5.7)	74 (6.2)	76 (7.3)
Central	69 (3.7)	66 (4.7)	59 (4.1)	*** (***)	*** (***)	31 (3.7)	34 (4.7)	41 (4.1)	*** (***)	*** (***)
West	68 (2.9)	68 (3.5)	45 (3.0)	38 (5.1)	38 (5.4)	32 (2.9)	32 (3.5)	55 (3.0)	62 (5.1)	62 (5.4)
STATES										
Alabama	58 (2.4)	57 (3.3)	39 (2.3)	30 (3.5)	32 (4.3)	42 (2.4)	43 (3.3)	61 (2.3)	70 (3.5)	68 (4.3)
Arizona	69 (2.4)	63 (2.8)	43 (2.9)	32 (2.9)	34 (3.1)	31 (2.4)	37 (2.8)	57 (2.9)	68 (2.9)	66 (3.1)
Arkansas	64 (1.6)	65 (3.4)	43 (1.9)	35 (2.8)	26 (4.1)	36 (1.6)	35 (3.4)	57 (1.9)	65 (2.8)	74 (4.1)
California	68 (2.4)	58 (3.2)	41 (2.6)	30 (3.7)	29 (2.9)	32 (2.4)	42 (3.2)	59 (2.6)	70 (3.7)	71 (2.9)
Colorado	76 (1.6)	70 (1.6)	48 (2.2)	35 (4.1)	44 (4.2)	24 (1.6)	30 (1.6)	52 (2.2)	65 (4.1)	56 (4.2)
Connecticut	79 (1.2)	68 (3.1)	52 (2.8)	33 (4.4)	43 (5.1)	21 (1.2)	32 (3.1)	48 (2.8)	67 (4.4)	57 (5.1)
Delaware	69 (1.7)	60 (4.0)	43 (2.6)	33 (4.4)	37 (5.4)	31 (1.7)	40 (4.0)	57 (2.6)	67 (4.4)	63 (5.4)
Dist. Columbia	28 (2.3)	26 (3.3)	15 (1.6)	15 (3.2)	11 (2.5)	72 (2.3)	74 (3.3)	85 (1.6)	85 (3.2)	89 (2.5)
Florida	62 (2.2)	60 (3.1)	37 (2.0)	31 (3.4)	33 (3.2)	38 (2.2)	40 (3.1)	63 (2.0)	69 (3.4)	67 (3.2)
Georgia	68 (2.4)	65 (2.7)	41 (2.2)	36 (3.5)	32 (4.2)	32 (2.4)	35 (2.7)	59 (2.2)	64 (3.5)	68 (4.2)
Hawaii	57 (1.8)	56 (2.9)	34 (1.7)	30 (5.2)	30 (2.6)	43 (1.8)	44 (2.9)	66 (1.7)	70 (5.2)	70 (2.6)
Idaho	79 (1.8)	77 (2.1)	58 (2.6)	43 (4.3)	48 (6.1)	21 (1.8)	23 (2.1)	42 (2.6)	57 (4.3)	52 (6.1)
Indiana	75 (2.2)	70 (2.3)	55 (2.1)	40 (4.7)	38 (5.0)	25 (2.2)	30 (2.3)	45 (2.1)	60 (4.7)	62 (5.0)
Iowa	82 (1.4)	82 (1.8)	69 (2.4)	53 (5.2)	62 (4.1)	18 (1.4)	18 (1.8)	31 (2.4)	47 (5.2)	38 (4.1)
Kentucky	65 (2.4)	66 (2.4)	46 (2.2)	30 (2.5)	29 (4.5)	35 (2.4)	34 (2.4)	54 (2.2)	70 (2.5)	71 (4.5)
Louisiana	48 (3.1)	50 (2.7)	32 (2.5)	24 (2.9)	27 (3.0)	52 (3.1)	50 (2.7)	68 (2.5)	76 (2.9)	73 (3.0)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	68 (1.9)	60 (2.8)	41 (2.3)	37 (4.2)	40 (4.5)	32 (1.9)	40 (2.8)	59 (2.3)	63 (4.2)	60 (4.5)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	71 (1.7)	67 (2.4)	51 (2.5)	39 (4.9)	41 (3.4)	29 (1.7)	33 (2.4)	49 (2.5)	61 (4.9)	59 (3.4)
Minnesota	82 (2.0)	83 (1.7)	62 (2.3)	46 (5.7)	56 (4.3)	18 (2.0)	17 (1.7)	38 (2.3)	54 (5.7)	44 (4.3)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	84 (1.5)	79 (2.3)	65 (2.9)	49 (7.2)	51 (5.2)	16 (1.5)	21 (2.3)	35 (2.9)	51 (7.2)	49 (5.2)
New Hampshire	82 (1.6)	77 (3.2)	58 (2.8)	50 (5.8)	45 (7.4)	18 (1.6)	23 (3.2)	42 (2.8)	50 (5.8)	55 (7.4)
New Jersey	76 (2.0)	68 (3.0)	53 (2.5)	42 (4.9)	43 (4.4)	24 (2.0)	32 (3.0)	47 (2.5)	58 (4.9)	57 (4.4)
New Mexico	70 (2.1)	60 (2.8)	40 (2.6)	28 (2.7)	23 (3.2)	30 (2.1)	40 (2.8)	60 (2.6)	72 (2.7)	77 (3.2)
New York	69 (1.4)	62 (3.1)	49 (2.5)	35 (5.2)	35 (4.3)	31 (1.4)	38 (3.1)	51 (2.5)	65 (5.2)	65 (4.3)
North Carolina	60 (2.5)	55 (2.5)	34 (1.9)	26 (2.8)	21 (3.0)	40 (2.5)	45 (2.5)	66 (1.9)	74 (2.8)	79 (3.0)
North Dakota	88 (1.7)	84 (3.6)	73 (3.2)	55 (5.9)	63 (6.6)	12 (1.7)	16 (3.6)	27 (3.2)	45 (5.9)	37 (6.6)
Ohio	71 (1.5)	69 (2.5)	51 (2.2)	37 (4.8)	28 (5.0)	29 (1.5)	31 (2.5)	49 (2.2)	63 (4.8)	72 (5.0)
Oklahoma	71 (1.9)	64 (3.5)	47 (2.0)	43 (4.4)	40 (5.5)	29 (1.9)	36 (3.5)	53 (2.0)	57 (4.4)	60 (5.5)
Pennsylvania	77 (2.4)	71 (2.7)	51 (2.4)	42 (4.9)	40 (6.0)	23 (2.4)	29 (2.7)	49 (2.4)	58 (4.9)	60 (6.0)
Rhode Island	70 (1.4)	64 (2.8)	46 (1.9)	30 (3.3)	26 (3.4)	30 (1.4)	36 (2.8)	54 (1.9)	70 (3.3)	74 (3.4)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	70 (1.9)	64 (3.0)	41 (2.3)	34 (2.7)	30 (3.8)	30 (1.9)	36 (3.0)	59 (2.3)	66 (2.7)	70 (3.8)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	74 (1.9)	64 (2.6)	44 (2.2)	32 (3.3)	37 (4.8)	26 (1.9)	36 (2.6)	56 (2.2)	68 (3.3)	63 (4.8)
West Virginia	67 (2.5)	58 (2.9)	43 (1.9)	29 (3.1)	27 (4.4)	33 (2.5)	42 (2.9)	57 (1.9)	71 (3.1)	73 (4.4)
Wisconsin	81 (2.0)	78 (2.4)	68 (2.3)	46 (5.4)	48 (5.5)	19 (2.0)	22 (2.4)	32 (2.3)	54 (5.4)	52 (5.5)
Wyoming	80 (1.7)	79 (2.0)	60 (3.1)	50 (5.2)	38 (4.5)	20 (1.7)	21 (2.0)	40 (3.1)	50 (5.2)	62 (4.5)
TERRITORIES										
Guam	38 (1.9)	42 (3.9)	22 (2.0)	14 (3.5)	18 (1.9)	62 (1.9)	58 (3.9)	78 (2.0)	86 (3.5)	82 (1.9)
Virgin Islands	12 (1.8)	16 (3.9)	12 (1.7)	6 (1.6)	8 (2.1)	88 (1.8)	84 (3.9)	88 (1.7)	94 (1.6)	92 (2.1)

When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. Descriptions of mathematics proficiency at the three achievement levels are found in Chapter One. (xxx) Did not participate in the 1990 Trial State Assessment.

National Performance by Public and Private Schools

Average mathematics proficiency and achievement levels for the nation by type of school for students in grades 4, 8, and 12 in 1990 and 1992 are presented in TABLE 2.14. Students going to private schools were divided into two categories: those attending Catholic schools and those attending other types of private schools. At all three grades, students in private schools, either Catholic or other, have higher average mathematics proficiency than do students attending public schools.

Between 1990 and 1992, average performance increased for fourth graders attending either public or Catholic schools, and for eighth graders attending public schools. At grades 8 and 12, gains were found for students attending non-Catholic private schools, although the estimates were less stable.

It is estimated that approximately 2 to 8 percent of the students across the three grades assessed reached the Advanced achievement level in 1992, for the three types of schools. Approximately one-fifth of fourth graders in all three types of schools performed at or above the Proficient level. At grades 8 and 12, a greater percentage of private-school students than public-school students performed at or above the Proficient level. Twenty-three percent of the public-school eighth graders were estimated to have reached the Proficient level compared to about 32 percent in Catholic schools and 43 percent in other private schools. At grade 12, 14 percent of the public-school students were estimated to be at or above the Proficient level compared to 22 percent of the Catholic-school students and 36 percent of those attending other private schools. More private-school than public-school students also reached the Basic level at all three grades assessed. Approximately three-fifths of the public-school students at all three grades were estimated to have achieved at or above the Basic level compared to approximately 70 percent of the fourth graders, three-fourths of the eighth graders, and about 80 percent of the twelfth graders attending private schools (both Catholic and other).

Compared to 1990, the percentage of students reaching the Advanced level in 1992 increased for eighth graders attending other private schools. Gains at the Proficient level were made by public-school fourth graders, eighth graders attending all three types of schools, and twelfth graders attending other private schools. At the Basic level, fourth-grade public-school students and twelfth graders attending non-Catholic private schools showed improvement from 1990 to 1992.

TABLE 2.14 Average Mathematics Proficiency and Achievement Levels by Type of School, Grades 4, 8, and 12

				Percentage of Students At or Above			
	Assessment Years	Percentage of Students	Average Proficiency	Advanced	Proficient	Basic	Percentage Below Basic
Grade 4							
Public Schools	**1992**	87(1.0)	217(0.8)>	2(0.3)	18(1.1)>	59(1.1)>	**41(1.1)<**
	1990	89(1.4)	212(1.1)	1(0.4)	12(1.3)	52(1.6)	**48(1.6)**
Catholic Schools	**1992**	8(0.7)	227(1.2)>	2(0.4)	22(1.6)	72(2.4)	**28(2.4)**
	1990	7(1.2)	219(3.0)	2(0.8)	16(2.6)	63(4.6)	**37(4.6)**
Other Private Schools	**1992**	4(0.9)	226(3.7)	4(1.3)	22(3.4)	70(5.7)	**30(5.7)**
	1990	4(0.9)	232(3.6)!	4(2.6)	30(4.9)	78(5.6)	**22(5.6)**
Grade 8							
Public Schools	**1992**	89(0.9)	266(1.0)>	3(0.5)	23(1.1)>	61(1.2)	**39(1.2)**
	1990	92(1.3)	262(1.4)	2(0.4)	19(1.2)	57(1.4)	**43(1.4)**
Catholic Schools	**1992**	6(0.7)	277(2.1)	4(0.9)	32(2.4)>	75(2.6)	**25(2.6)**
	1990	5(1.0)	271(3.5)	2(0.9)	21(3.1)	70(5.1)	**30(5.1)**
Other Private Schools	**1992**	5(0.7)	284(4.1)>	8(1.9)>	43(5.3)>	77(3.5)	**23(3.5)**
	1990	3(0.8)	272(3.1)!	2(1.1)	24(3.5)	71(4.3)	**29(4.3)**
Grade 12							
Public Schools	**1992**	87(1.2)	297(1.0)	2(0.3)	14(1.0)	61(1.3)	**39(1.3)**
	1990	91(2.0)	294(1.2)	2(0.3)	13(1.1)	58(1.7)	**42(1.7)**
Catholic Schools	**1992**	8(1.3)	310(2.5)	2(0.6)	22(2.6)	79(2.9)	**21(2.9)**
	1990	6(1.6)	301(4.6)!	1(0.7)	15(3.4)	68(5.7)	**32(5.7)**
Other Private Schools	**1992**	4(1.0)	319(4.3)!>	6(1.5)	36(5.5)>	84(4.2)>	**16(4.2)<**
	1990	4(1.4)	298(5.1)!	2(1.8)	10(4.8)	62(7.9)	**38(7.9)**

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. ! Interpret with caution -- the nature of the sample does not allow accurate determination of the variability of this estimated statistic. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent confidence for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details). Percentages may not total 100 percent due to rounding error.

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National Performance at Grade 12 by High-School Program After High School

As shown in TABLE 2.15, high-school seniors who reported being enrolled in academic programs had higher average mathematics proficiency than their classmates enrolled in general or vocational/technical programs. Between 1990 and 1992, the average proficiency of twelfth graders increased for all three types of high-school programs. Consistent with the findings for type of high-school program, seniors planning to attend a four-year college had higher average mathematics proficiency than did those with other plans after graduation.

TABLE 2.15 **Average Mathematics Proficiency by Type of High-School Program and Plans After High-School Graduation, Grade 12**

Type of High-School Program	Assessment Years	Percent of Students	Average Proficiency
Academic	1992	61(1.5)	315(0.8)>
	1990	60(2.1)	308(1.2)
General	1992	35(1.3)	285(1.1)>
	1990	32(2.3)	277(1.3)
Vocational/Technical	1992	5(0.4)<	278(2.5)>
	1990	8(0.9)	269(2.3)
Plans after High School	**Assessment Year**	**Percent of Students**	**Average Proficiency**
Working Full-time	1992	8(0.4)	278(1.9)
Voc/Tech/Business School	1992	9(0.6)	278(1.8)
2-Year College	1992	18(1.0)	286(1.4)
4-Year College or Service Academy	1992	56(1.4)	313(0.9)
Military Service	1992	5(0.3)	285(2.0)
Other	1992	3(0.3)	277(3.2)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent confidence for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details). Percentages may not total 100 percent due to rounding error.

National Performance by Average School Performance

To examine the relationship between level of school performance and level of student performance, NAEP sorted schools by their students' average performance on the mathematics assessments, identifying the top one-third and bottom one-third of the schools. The average mathematics proficiency and achievement levels for the top one-third of the schools and the bottom one-third of the schools in grades 4, 8, and 12 in 1992 and 1990 are presented in TABLE 2.16.

TABLE 2.16 Average Mathematics Proficiency and Achievement Levels for the Top One-Third of the Schools and the Bottom One-Third of the Schools, Grades 4, 8, and 12

				Percentage of Students At or Above			
	Assessment Years	Percentage of Students	Average Proficiency	Advanced	Proficient	Basic	Percentage Below Basic
Grades 4							
Top One-Third Schools	1992	34(2.8)	237(0.8)>	5(0.8)	34(1.5)>	84(1.0)>	16(1.0)>
	1990	34(3.9)	229(1.4)	3(1.1)	25(2.6)	76(1.8)	24(1.8)
Bottom One-Third Schools	1992	29(2.1)	196(1.2)	0(0.1)	4(0.5)	32(1.5)	68(1.5)
	1990	30(3.4)	194(1.7)	0(0.2)	4(0.9)	29(2.5)	71(2.5)
Grades 8							
Top One-Third Schools	1992	29(3.1)	289(1.3)>	8(1.1)	45(2.0)>	86(1.5)>	14(1.5)<
	1990	30(4.4)	280(1.2)	5(1.0)	35(2.0)	78(1.7)	22(1.7)
Bottom One-Third Schools	1992	32(1.8)	245(0.9)	0(0.3)	8(0.8)	37(1.4)	63(1.4)
	1990	34(3.9)	244(1.8)	0(0.3)	8(1.3)	36(2.0)	64(2.0)
Grades 12							
Top One-Third Schools	1992	35(3.1)	316(1.1)>	4(0.7)	29(1.5)	82(1.3)>	18(1.3)<
	1990	34(5.0)	310(1.2)	4(0.9)	23(2.3)	77(1.8)	23(1.8)
Bottom One-Third Schools	1992	27(2.2)	279(1.0)>	0(0.2)	5(0.9)	40(1.6)	60(1.6)
	1990	26(3.3)	274(1.5)	0(0.2)	3(0.9)	35(2.7)	65(2.7)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent confidence for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details). When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 percent or less were rounded to 0 percent.

By definition, the average mathematics proficiency of the top-performing schools is higher than that of the bottom-performing schools, but it is interesting to look at changes within the groups at each grade between 1990 and 1992. At all three grades, there was an increase in average mathematics proficiency in the top one-third of the schools over the two-year period. In contrast, for students attending schools in the bottom one-third of mathematics performance, only twelfth graders showed gains.

In 1992, only a handful of students in the bottom one-third of the nation's schools in any of the three grades assessed were estimated to have reached the Advanced level. In comparison, an estimated 4 to 8 percent of the students in the top one-third of the schools, depending on the grade, attained this achievement level. From six to almost nine times as many students in the top one-third of schools reached the Proficient level as did students in the bottom one-third of the schools, again depending on the grade level. More than twice as many students in the top one-third of the schools as in the bottom one-third of the schools were estimated to have reached the Basic level across the three grades.

Some gains in the percentages of students at the various achievement levels between 1990 and 1992 were found for students in the top one-third of the schools. For example, at the fourth and eighth grades, increases were noted at the Proficient and Basic levels, and at the twelfth grade gains were made at the Basic level of achievement. In contrast, no statistically significant improvements were observed at any grade for any achievement level for students in the bottom one-third of the schools.

TABLE 2.17 presents data about the percentages of students from demographic subgroups in the higher- and lower-performing schools. Approximately one-third to almost one-half of the White and Asian/Pacific Islander students in all three grades attended schools in the top one-third of mathematics performance, as was the case for Northeast and Central students. Also, approximately 40 percent of the students whose parents had graduated from college attended higher-performing schools, as did about three-fifths to four-fifths of the students from advantaged urban communities.

TABLE 2.17 Percentage of Students Within Selected Demographic Subgroups in the Top One-third of the Schools and the Bottom One-Third of the Schools, Grades 4, 8, and 12

	Percentage of Students by Race/Ethnicity						Percentage of Students by Type of Community			
	Assessment Years	White	Black	Hispanic	Asian/ Pacific Islander	American Indian	Advan. Urban	Disadvan. Urban	Extreme Rural	Other
Grade 4										
Top One-Third	**1992**	43(3.6)	7(1.6)	16(2.4)	45(7.8)	22(4.9)	78(5.9)	0(0.0)	35(10.5)	31(2.9)
	1990	42(5.0)	4(1.4)	24(4.5)	48(11.1)	29(5.6)	69(10.8)	6(5.0)	40(18.0)	32(4.9)
Bottom One-Third	**1992**	17(2.2)	70(4.4)	57(3.9)	21(3.5)	38(6.2)	3(2.1)	83(7.9)	33(10.0)	26(2.5)
	1990	19(3.7)	70(5.0)	46(5.3)	16(6.0)	35(7.2)	3(2.9)	66(7.3)	34(17.9)	29(4.1)
Grade 8										
Top One-Third	**1992**	36(3.8)	8(1.9)	14(2.5)	44(8.1)	15(4.8)	57(10.4)	0(0.0)	19(11.0)	30(4.0)
	1990	36(5.3)	9(2.7)	14(4.3)	34(11.0)	21(15.1)	79(13.5)	8(8.5)	6(5.1)	28(5.1)
Bottom One-Third	**1992**	20(1.9)	72(3.3)	58(3.3)	22(5.7)	43(5.9)	1(0.6)	88(5.1)	45(13.3)	29(3.0)
	1990	23(4.0)	72(5.6)	46(9.1)	34(13.5)	62(33.1)	2(2.1)	64(11.8)	56(19.8)	32(4.8)
Grade 12										
Top One-Third	**1992**	41(3.7)	12(2.2)	19(2.7)	45(5.9)	33(14.8)	81(7.6)	8(4.3)	16(6.1)	34(3.7)
	1990	41(6.2)	12(3.2)	14(3.8)	24(10.5)	32(9.3)	70(13.6)	0(0.0)	48(16.0)	32(5.8)
Bottom One-Third	**1992**	17(2.4)	59(4.5)	52(6.5)	19(5.1)	30(9.3)	1(0.9)	72(7.3)	36(6.3)	23(2.7)
	1990	16(3.2)	67(6.0)	48(9.5)	24(13.3)	21(10.1)	22(12.2)	74(19.1)	30(15.3)	19(3.9)

The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent confidence for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details). When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 percent or less were rounded to 0 percent.

TABLE 2.17 Percentage of Students Within Selected Demographic Subgroups in the Top One-Third of the Schools and the Bottom One-Third of the Schools, Grades 4, 8, and 12 (continued)

		Percentage of Students by Region				Percentage of Students by Parents' Education			
	Assessment Years	Northeast	Southeast	Central	West	Did Not Finish H. S.	Grad. H.S.	Some Ed. After H. S.	Grad. College
Grade 4									
Top One-Third	1992	44(8.7)	17(3.5)	47(5.9)	30(4.8)	16(4.0)	26(3.3)	30(3.4)	45(3.1)
	1990	38(9.0)	15(7.1)	42(7.2)	40(8.5)	16(4.6)	30(4.3)	34(5.5)	43(4.4)
Bottom One-Third	1992	25(3.3)	53(6.3)	13(3.3)	28(4.4)	49(4.4)	34(3.3)	29(2.6)	22(1.9)
	1990	31(7.1)	49(11.0)	14(4.4)	27(5.6)	49(6.9)	33(4.1)	26(3.4)	22(2.5)
Grade 8									
Top One-Third	1992	34(8.2)	14(3.9)	44(6.6)	27(6.3)	10(2.9)	21(3.4)	27(3.7)	41(3.5)
	1990	50(9.8)	15(4.6)	40(11.5)	20(8.5)	11(2.5)	20(4.6)	31(5.2)	42(5.2)
Bottom One-Third	1992	30(4.0)	53(4.3)	16(2.4)	31(4.0)	60(3.3)	38(2.5)	30(2.1)	21(1.7)
	1990	24(9.8)	60(9.1)	20(4.2)	30(7.2)	55(6.6)	40(5.2)	32(4.0)	24(3.2)
Grade 12									
Top One-Third	1992	42(5.9)	18(5.2)	41(6.9)	37(6.3)	15(3.0)	21(2.8)	30(3.5)	48(3.7)
	1990	58(10.9)	11(6.2)	40(12.5)	25(9.4)	13(2.3)	31(5.7)	32(5.6)	43(6.0)
Bottom One-Third	1992	19(3.3)	45(6.5)	9(2.8)	35(4.2)	51(5.0)	34(2.9)	27(3.0)	18(1.9)
	1990	11(5.5)	63(10.3)	13(5.7)	25(6.7)	56(6.6)	32(4.2)	25(4.0)	16(2.6)

In contrast, about two-thirds of the Black students and more than half of the Hispanic students at all three grades attended lower-performing schools, as did about 70 percent or more of the students attending schools in disadvantaged urban communities. The large proportion of students in disadvantaged urban communities attending lower-performing schools and the disproportionate percentages of Black and Hispanic students attending these schools coincide with other studies on the effect of poverty on learning and reinforce the effect of socioeconomic status on the findings by race/ethnicity.[21]

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[21] Sheldon Danzinger, *Education, Earnings, and Poverty*, Research Report No. 89-154, Populations Studies Center, University of Michigan, 1989.

Floretta D. McKenzie, *"Education Strategies for the '90s" in The State of Black America* (New York, NY: National Urban League, Inc., 1991).

Sheldon Danzinger and Jonathan Stern, *The Causes and Consequences of Child Poverty in the United States* (Florence, Italy: UNICEF International Child, 1990).

David H. Swinton, "The Economic Status of African Americans: Permanent Poverty and Inequality" in *The State of Black America* (New York, NY: National Urban League, Inc., 1991).

Performance by Average School Performance for the States

The achievement levels for states and territories for the top one-third of the schools in grade 4 in 1992 and in grade 8 in 1990 and 1992 are presented in TABLE 2.18, and those for the bottom one-third of the schools are presented in TABLE 2.19. At grade 4, all states and jurisdictions had some students in the top-third schools reaching the Advanced level. It was estimated that Connecticut, New Jersey, and Virginia had as high as 7 percent of their fourth graders in top-third schools at this level. Most jurisdictions had from 20 to around 40 percent of their fourth graders in the top-third schools estimated to be at or above the Proficient level; the several exceptions with fewer students were Arkansas (17 percent), the District of Columbia (16 percent), Louisiana (16 percent), Mississippi (14 percent), and Guam (8 percent). The participating states and territories were estimated to have from 65 to 89 percent of their fourth graders in the top-third schools achieving at or above the Basic level, with the exception of the District of Columbia (47 percent), Mississippi (59 percent), and Guam (38 percent).

Fourth graders attending schools classified in the bottom one-third of proficiency did not often perform at the Advanced level. There were seven states where about 1 to 2 percent of the fourth graders in lower-performing schools were estimated to have attained the Advanced level: Delaware, Iowa, Maine, Minnesota, North Dakota, Wisconsin, and Wyoming. Except for Maine (17 percent) and Minnesota (16 percent), most jurisdictions had 15 percent or fewer of fourth graders in bottom-third schools estimated to be at or above the Proficient level. For many participating states and territories fewer than half of the fourth graders in bottom-third schools were estimated to be at or above the Basic level.

At grade 8, all jurisdictions had from 1 to 9 percent of the students in the top-third schools estimated to be at or above the Advanced level, except the Virgin Islands. Iowa, Minnesota, and New Jersey were the three states where 9 percent of their eighth graders in the top-third schools were estimated to have attained the highest achievement level. In most jurisdictions, it was estimated that from 20 to 50 percent of the eighth graders in top-third schools achieved at or above the Proficient level in mathematics. The exceptions to this pattern were for the top-third schools in the District of Columbia, Mississippi, Guam, and the Virgin Islands, where fewer than one-fifth of the students were estimated to have reached the Proficient level. Only the District of Columbia, Hawaii, Mississippi, Guam, and the Virgin Islands had fewer than between 65 and 90 percent of eighth graders in top-third schools estimated to be at or above the Basic level of performance.

It was estimated that slightly more than half of the participating states and territories had from 1 to 3 percent of their eighth graders in bottom-third schools reach the Advanced level. Across all jurisdictions, one-fourth or fewer of eighth graders in bottom-third schools were estimated to be at or above the Proficient level. For most participating states and territories, between about one-third and two-thirds of eighth graders in bottom-third schools were estimated to have performed at or above the Basic level. However, lower percentages were estimated for Alabama, California, the District of Columbia, Louisiana, Mississippi, Guam, and the Virgin Islands.

Between 1990 and 1992, average mathematics proficiency among eighth graders in top-third schools increased in Arizona, California, Colorado, Connecticut, Florida, Hawaii, Idaho, Kentucky, Louisiana, Minnesota, New Jersey, New York, North Carolina, Ohio, and Texas. Only the top-third schools in Texas showed an increased percentage of eighth graders at the Advanced level between 1990 and 1992. Eighth graders from top-third schools in California, Minnesota, New York, and Texas showed increased percentages in 1992 over 1990 at the Proficient level. Percentages of eighth graders in top-third schools at or above the Basic level increased between 1990 and 1992 in Colorado, New York, and North Carolina.

Average mathematics proficiency among eighth graders in bottom-third schools increased in Arizona, Colorado, Delaware, Hawaii, Idaho, Iowa, Minnesota, Nebraska, New Hampshire, New Mexico, North Carolina, North Dakota, Oklahoma, Texas, Virginia, West Virginia, and the Virgin Islands. Although no participating jurisdiction showed significant increase in the percentage of eighth graders in bottom-third schools at or above the Advanced level between 1990 and 1992 three states showed increases at the Proficient level--Hawaii, Iowa, and Minnesota. Increased percentages of eighth graders in bottom-third schools performed at or above the Basic level in Hawaii, Kentucky, New Hampshire, North Carolina, Texas, and the Virgin Islands.

TABLE 2.20 presents the percentages of students within selected demographic subgroups in the top-performing one-third of the schools in grades 4 and 8 for each of the states and territories participating in the Trial State Assessments in 1990 and 1992. TABLE 2.21 presents percentages of students in the same demographic groups for the bottom-performing one-third of the schools. If students in the various demographic subgroups were distributed evenly among the top-performing one-third of schools as well as the middle-third and bottom-third of schools, one would expect about 33 percent of each demographic subgroup in each category of schools. If there are more than 33 percent of the students in any one demographic subgroup in one or another of the school-performance clusters, then the group could be thought of as overrepresented in that cluster. Likewise, if there are fewer than 33 percent of students in a demographic group in a school-performance cluster, then that group could be thought of as underrepresented.

In general at grade 4, Black students appear to be underrepresented in top-performing schools, except in Kentucky, New Mexico, West Virginia, and Guam. Hispanic students also seem to be underrepresented in these schools, except in Iowa, Louisiana, Missouri, North Carolina, North Dakota, Oklahoma, Virginia, and West Virginia. In contrast, Asian/Pacific Islander students are overrepresented in the top one-third of schools, except in Hawaii, Massachusetts, New York, Rhode Island, and Guam.

The pattern is much the same at grade 8. Black students are underrepresented in top-performing schools, as are Hispanic students, except in Delaware, the District of Columbia, and Virginia. Conversely, Asian/Pacific Islander students tend to be overrepresented, except in Rhode Island and Guam.

In all participating jurisdictions at both grades, students attending disadvantaged urban schools were underrepresented in the top-performing one-third of the schools, as were students whose parents were less well educated. There was no significant difference in any jurisdiction between the percentages of males and females in the top one-third of schools.

As might be anticipated, the pattern of percentages by the various demographic subgroups in the bottom-performing one-third of the schools in grades 4 and 8 was the reverse of the pattern in the top one-third schools. At the fourth grade, Black students are overrepresented in the bottom-third schools, except in Hawaii, New Mexico, and Guam; the same overrepresentation holds true for Hispanic students, except in Alabama, Kentucky, Louisiana, South Carolina, and West Virginia. Also, Asian/Pacific Islander fourth graders were underrepresented in the bottom-third schools, with the exception of Hawaii, Massachusetts, Rhode Island, and Guam. At grade 8, the several exceptions to the pattern of overrepresentation of Black and Hispanic students and the underrepresentation of Asian/Pacific Islander students in lower-performing schools included the District of Columbia, Hawaii, New York, Rhode Island, and Guam.

At both grades 4 and 8, there were high percentages of disadvantaged urban students in the lower-performing one-third of schools, and students whose parents did not finish high school or graduated from high school also were overrepresented. However, both males and females in each jurisdiction seemed to be equally represented in the bottom-third of schools.

TABLE 2.18 | Average Mathematics Proficiency and Achievement Levels for the Top One-Third of the Schools

PUBLIC SCHOOLS	Grade 4 - 1992					
	Percentage of Students	Average Proficiency	Percentage of Students At or Above Advanced	Percentage of Students At or Above Proficient	Percentage of Students At or Above Basic	Percentage of Students Below Basic
NATION	44 (2.9)	234 (0.9)	4 (0.7)	30 (1.8)	80 (1.1)	20 (1.1)
Northeast	59 (6.7)	236 (2.1)	5 (1.4)	35 (4.1)	81 (2.1)	19 (2.1)
Southeast	21 (5.2)	234 (2.8)!	5 (1.4)!	30 (4.0)!	80 (4.0)!	20 (4.0)!
Central	56 (8.3)	233 (1.2)	3 (1.2)	29 (2.0)	80 (2.4)	20 (2.4)
West	43 (4.4)	232 (1.9)	4 (1.6)	28 (3.7)	79 (2.1)	21 (2.1)
STATES						
Alabama	34 (5.2)	225 (1.8)	2 (0.6)	22 (2.6)	69 (2.7)	31 (2.7)
Arizona	35 (2.9)	230 (1.0)	3 (0.7)	25 (1.3)	77 (1.9)	23 (1.9)
Arkansas	33 (3.7)	222 (1.5)	1 (0.6)	17 (2.1)	66 (2.0)	34 (2.0)
California	34 (4.8)	228 (1.5)	4 (1.3)	25 (2.1)	71 (2.1)	29 (2.1)
Colorado	35 (4.0)	234 (1.0)	5 (0.9)	31 (1.3)	79 (1.6)	21 (1.6)
Connecticut	36 (3.9)	242 (1.1)	7 (1.5)	42 (2.6)	88 (1.2)	12 (1.2)
Delaware	31 (0.2)	228 (1.9)	4 (1.0)	27 (1.4)	69 (2.8)	31 (2.8)
Dist. Columbia	30 (0.3)	211 (0.9)	3 (0.8)	16 (0.9)	47 (1.8)	53 (1.8)
Florida	34 (4.4)	229 (1.3)	3 (0.9)	26 (2.4)	75 (2.0)	25 (2.0)
Georgia	32 (4.2)	234 (1.2)	3 (0.9)	31 (2.1)	80 (2.0)	20 (2.0)
Hawaii	32 (4.1)	229 (1.1)	3 (0.8)	28 (2.0)	73 (1.5)	27 (1.5)
Idaho	33 (4.4)	231 (1.1)	2 (0.6)	25 (1.7)	79 (1.8)	21 (1.8)
Indiana	34 (4.5)	232 (0.7)	3 (0.7)	28 (2.0)	78 (1.3)	22 (1.3)
Iowa	34 (4.7)	240 (0.8)	6 (1.0)	40 (2.0)	86 (1.3)	14 (1.3)
Kentucky	35 (3.5)	226 (1.0)	4 (1.2)	23 (2.1)	70 (1.7)	30 (1.7)
Louisiana	36 (4.1)	221 (1.4)	1 (0.6)	16 (1.6)	65 (2.6)	35 (2.6)
Maine	31 (4.8)	241 (1.3)	6 (1.1)	42 (2.3)	87 (1.7)	13 (1.7)
Maryland	32 (3.5)	236 (1.3)	6 (0.7)	35 (2.1)	81 (1.7)	19 (1.7)
Massachusetts	37 (4.4)	241 (1.2)	6 (1.1)	40 (2.2)	88 (1.1)	12 (1.1)
Michigan	34 (5.2)	236 (1.4)	4 (1.3)	35 (2.4)	83 (1.7)	17 (1.7)
Minnesota	31 (4.1)	239 (0.9)	6 (1.2)	39 (2.0)	85 (1.7)	15 (1.7)
Mississippi	31 (2.9)	218 (1.1)	1 (0.3)	14 (1.7)	59 (2.1)	41 (2.1)
Missouri	38 (4.6)	234 (1.1)	4 (0.7)	32 (2.3)	79 (1.5)	21 (1.5)
Nebraska	34 (4.8)	238 (1.0)	6 (1.2)	37 (2.3)	84 (1.4)	16 (1.4)
New Hampshire	33 (5.0)	241 (1.4)	6 (1.2)	41 (2.6)	86 (1.8)	14 (1.8)
New Jersey	37 (4.5)	243 (1.3)	7 (1.5)	42 (2.5)	89 (1.4)	11 (1.4)
New Mexico	34 (5.2)	227 (1.5)	2 (1.0)	22 (2.6)	72 (2.0)	28 (2.0)
New York	32 (3.6)	235 (1.2)	5 (0.8)	32 (2.6)	81 (2.1)	19 (2.1)
North Carolina	34 (4.1)	227 (1.3)	3 (0.8)	23 (1.9)	71 (1.9)	29 (1.9)
North Dakota	34 (4.4)	237 (0.9)	4 (0.7)	34 (1.9)	85 (1.9)	15 (1.9)
Ohio	34 (3.9)	234 (1.1)	4 (0.9)	31 (2.3)	80 (1.8)	20 (1.8)
Oklahoma	37 (4.5)	230 (1.1)	3 (0.9)	25 (1.8)	76 (2.0)	24 (2.0)
Pennsylvania	33 (4.5)	240 (1.2)	6 (1.5)	38 (2.3)	87 (1.4)	13 (1.4)
Rhode Island	35 (4.9)	231 (1.4)	4 (1.1)	26 (2.0)	78 (1.8)	22 (1.8)
South Carolina	36 (4.2)	226 (1.1)	3 (0.8)	25 (1.8)	69 (1.6)	31 (1.6)
Tennessee	34 (4.1)	225 (1.3)	2 (0.6)	21 (1.7)	71 (2.4)	29 (2.4)
Texas	37 (4.7)	231 (1.7)	4 (1.2)	27 (2.7)	77 (2.3)	23 (2.3)
Utah	32 (4.1)	235 (0.9)	4 (0.8)	32 (1.8)	82 (1.6)	18 (1.6)
Virginia	35 (4.2)	239 (1.6)	7 (1.7)	38 (2.6)	83 (1.7)	17 (1.7)
West Virginia	35 (4.0)	225 (1.5)	3 (0.7)	22 (2.0)	70 (1.7)	30 (1.7)
Wisconsin	34 (5.0)	238 (1.2)	5 (1.0)	38 (2.2)	84 (1.6)	16 (1.6)
Wyoming	30 (4.0)	234 (0.9)	3 (0.8)	31 (2.0)	83 (1.4)	17 (1.4)
TERRITORY						
Guam	33 (0.1)	202 (1.5)	1 (0.3)	8 (1.3)	38 (2.6)	62 (2.6)

The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. ! Interpret with caution - the nature of the sample does not allow accurate determination of the variability of this estimated statistic.

TABLE 2.18 | Average Mathematics Proficiency and Achievement Levels for the Top One-Third of the Schools (continued)

PUBLIC SCHOOLS	Grade 8 - 1992					
	Percentage of Students	Average Proficiency	Percentage of Students At or Above Advanced	Percentage of Students At or Above Proficient	Percentage of Students At or Above Basic	Percentage of Students Below Basic
NATION	39 (4.1)	284 (1.2)	7 (1.0)	38 (1.9)	81 (1.4)	19 (1.4)
Northeast	45 (9.0)	285 (3.5)	10 (2.5)	40 (4.4)	80 (3.4)	20 (3.4)
Southeast	9 (4.4)	284 (1.6)!	5 (1.7)!	38 (4.7)!	83 (4.7)!	17 (4.7)!
Central	59 (8.2)	284 (1.5)	5 (1.1)	38 (3.2)	82 (1.7)	18 (1.7)
West	45 (9.6)	282 (2.0)!	7 (2.0)!	37 (3.3)!	79 (2.5)!	21 (2.5)!
STATES						
Alabama	32 (4.6)	269 (1.8)	3 (0.9)	24 (2.0)	65 (2.6)	35 (2.6)
Arizona	37 (4.5)	279 (1.5) >	4 (0.9)	30 (2.5)	79 (2.2)	21 (2.2)
Arkansas	32 (3.9)	270 (1.1)	2 (0.8)	21 (1.4)	67 (2.1)	33 (2.1)
California	34 (4.4)	281 (1.9) >	6 (1.8)	36 (2.1) >	78 (1.9)	22 (1.9)
Colorado	34 (4.1)	286 (1.3) >	5 (1.2)	40 (2.3)	85 (1.5) >	15 (1.5) <
Connecticut	34 (3.1)	293 (0.9) >	8 (1.5)	50 (1.5)	89 (1.3)	11 (1.3)
Delaware	29 (0.2)»	273 (1.8)	5 (0.8)	28 (2.5)	69 (1.9)	31 (1.9)
Dist. Columbia	32 (0.6)»	255 (1.8)	2 (0.7)	16 (2.7)	49 (2.1)	51 (2.1)
Florida	36 (4.1)	276 (1.4) >	3 (0.8)	30 (2.2)	74 (1.9)	26 (1.9)
Georgia	34 (4.6)	275 (1.3)	4 (0.7)	29 (1.9)	74 (1.3)	26 (1.3)
Hawaii	37 (0.3)«	270 (1.2)»	4 (0.9)	26 (1.9)	63 (1.8)	37 (1.8)
Idaho	29 (3.9)	283 (1.0) >	4 (1.1)	37 (1.9)	83 (1.3)	17 (1.3)
Indiana	34 (5.3)	283 (1.3)	6 (0.9)	37 (1.7)	80 (1.6)	20 (1.6)
Iowa	32 (4.6)	293 (1.0)	9 (1.3)	50 (2.3)	91 (1.1)	9 (1.1)
Kentucky	33 (4.7)	275 (1.4) >	4 (0.8)	28 (2.3)	71 (1.7)	29 (1.7)
Louisiana	33 (4.9)	268 (1.9) >	1 (0.5)	20 (2.2)	65 (2.5)	35 (2.5)
Maine	30 (4.6)	289 (1.6)	6 (1.1)	43 (3.1)	89 (1.9)	11 (1.9)
Maryland	32 (4.0)	286 (1.5)	8 (1.3)	43 (2.2)	81 (1.3)	19 (1.3)
Massachusetts	35 (4.3)	289 (1.5)	7 (1.4)	47 (2.2)	86 (1.5)	14 (1.5)
Michigan	35 (5.1)	285 (1.7)	6 (1.0)	40 (2.6)	84 (1.7)	16 (1.7)
Minnesota	35 (4.8)	291 (1.0)»	9 (1.4)	48 (1.5)»	87 (1.3)	13 (1.3)
Mississippi	34 (4.8)	262 (1.1)	1 (0.4)	16 (1.4)	58 (1.8)	42 (1.8)
Missouri	31 (4.6)	282 (0.8)	5 (1.0)	36 (1.7)	80 (1.3)	20 (1.3)
Nebraska	27 (4.7)	291 (1.2)	7 (1.2)	48 (2.4)	89 (1.8)	11 (1.8)
New Hampshire	29 (4.3)	287 (1.5)	7 (1.4)	43 (2.2)	86 (1.7)	14 (1.7)
New Jersey	30 (3.4)	293 (1.2) >	9 (1.5)	50 (2.1)	89 (1.3)	11 (1.3)
New Mexico	31 (4.0)	273 (1.1)	3 (0.8)	24 (2.2)	70 (2.1)	30 (2.1)
New York	30 (3.8)	288 (1.3)»	8 (1.2)	42 (2.2)»	85 (1.5) >	15 (1.5) <
North Carolina	34 (4.8)	270 (1.2)»	3 (0.7)	23 (1.8)	67 (1.5) >	33 (1.5) <
North Dakota	26 (4.0) <	293 (1.5)	6 (1.5)	51 (2.3)	90 (1.9)	10 (1.9)
Ohio	34 (5.2)	284 (1.6) >	5 (1.2)	38 (3.2)	83 (2.5)	17 (2.5)
Oklahoma	32 (4.5)	280 (1.1)	3 (0.7)	32 (2.1)	80 (1.9)	20 (1.9)
Pennsylvania	36 (4.5)	286 (1.3)	6 (1.1)	41 (2.1)	82 (1.7)	18 (1.7)
Rhode Island	31 (0.2)	280 (1.0)	4 (0.9)	32 (2.1)	77 (1.9)	23 (1.9)
South Carolina	33 (3.5)	276 (1.2)	4 (1.0)	31 (1.9)	71 (1.7)	29 (1.7)
Tennessee	33 (4.3)	272 (1.4)	3 (1.0)	25 (2.2)	69 (2.0)	31 (2.0)
Texas	36 (4.2)	282 (1.5)»	8 (1.3) >	37 (2.1)»	77 (1.4)	23 (1.4)
Utah	32 (3.9)	283 (0.9)	4 (0.8)	36 (2.0)	83 (1.5)	17 (1.5)
Virginia	33 (4.3)	285 (1.5)	7 (1.4)	40 (2.1)	81 (1.9)	19 (1.9)
West Virginia	32 (4.9)	269 (1.0)	1 (0.5)	20 (1.3)	66 (1.8)	34 (1.8)
Wisconsin	39 (5.0)	289 (1.1)	7 (1.3)	45 (2.4)	88 (1.9)	12 (1.9)
Wyoming	28 (3.1)	283 (1.4)	5 (1.0)	36 (2.3)	82 (2.3)	18 (2.3)
TERRITORIES						
Guam	13 (0.2)«	244 (3.2)	2 (0.7)	9 (1.6)	38 (5.2)	62 (5.2)
Virgin Islands	28 (0.2)«	232 (1.3)	0 (0.3)	2 (1.0)	20 (2.2)	80 (2.2)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated. (xxx) Did not participate in the 1990 Trial State Assessment.

TABLE 2.18 | Average Mathematics Proficiency and Achievement Levels for the Top One-Third of the Schools (continued)

PUBLIC SCHOOLS	Grade 8 - 1990					
	Percentage of Students	Average Proficiency	Percentage of Students At or Above Advanced	Percentage of Students At or Above Proficient	Percentage of Students At or Above Basic	Percentage of Students Below Basic
NATION	27 (4.8)	281 (1.5)	6 (1.2)	36 (2.4)	78 (1.9)	22 (1.9)
Northeast	50(11.9)	282 (3.6)!	6 (2.3)!	37 (4.0)!	80 (3.8)!	20 (3.8)!
Southeast	13 (5.9)	281 (5.6)!	8 (2.6)!	44 (7.5)!	73 (7.7)!	27 (7.7)!
Central	35(12.2)	279 (1.8)!	3 (1.2)!	29 (3.5)!	78 (2.0)!	22 (2.0)!
West	19 (8.7)	281 (2.4)!	8 (3.0)!	38 (3.7)!	77 (3.4)!	23 (3.4)!
STATES						
Alabama	33 (4.2)	268 (1.2)	2 (0.5)	20 (1.4)	66 (1.6)	34 (1.6)
Arizona	36 (3.2)	275 (1.1)	3 (0.9)	26 (1.8)	74 (1.8)	26 (1.8)
Arkansas	32 (3.7)	270 (0.9)	2 (0.5)	22 (1.7)	69 (2.1)	31 (2.1)
California	32 (4.1)	275 (1.7)	4 (0.8)	28 (2.2)	73 (2.1)	27 (2.1)
Colorado	33 (3.5)	281 (0.9)	4 (0.9)	33 (1.7)	80 (1.3)	20 (1.3)
Connecticut	32 (2.8)	289 (1.0)	9 (1.0)	45 (2.1)	85 (1.5)	15 (1.5)
Delaware	26 (0.1)	276 (2.1)	5 (1.5)	34 (1.8)	70 (2.1)	30 (2.1)
Dist. Columbia	29 (0.2)	253 (2.1)	3 (0.5)	12 (2.0)	42 (2.7)	58 (2.7)
Florida	33 (3.9)	272 (1.3)	4 (0.9)	26 (1.5)	69 (1.5)	31 (1.5)
Georgia	33 (4.0)	278 (1.7)	6 (1.3)	33 (2.3)	74 (1.9)	26 (1.9)
Hawaii	45 (0.3)	263 (1.2)	3 (0.7)	21 (1.3)	59 (1.8)	41 (1.8)
Idaho	37 (0.8)	280 (1.3)	3 (0.8)	32 (2.4)	80 (1.7)	20 (1.7)
Indiana	34 (5.2)	280 (1.3)	6 (1.5)	33 (2.0)	78 (1.6)	22 (1.6)
Iowa	29 (4.8)	290 (1.5)	8 (1.3)	44 (2.7)	88 (1.3)	12 (1.3)
Kentucky	32 (4.5)	270 (1.1)	2 (0.6)	22 (1.8)	66 (1.8)	34 (1.8)
Louisiana	33 (4.0)	262 (1.8)	2 (0.5)	15 (2.6)	58 (2.7)	42 (2.7)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	33 (4.0)	283 (1.6)	8 (1.4)	37 (2.4)	79 (1.6)	21 (1.6)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	32 (4.3)	282 (1.2)	6 (1.2)	34 (2.0)	79 (1.6)	21 (1.6)
Minnesota	32 (4.2)	286 (0.8)	6 (0.9)	40 (1.5)	83 (1.2)	17 (1.2)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	33 (3.4)	290 (1.1)	8 (1.2)	46 (2.0)	89 (1.2)	11 (1.2)
New Hampshire	31 (1.0)	286 (1.3)	7 (1.1)	39 (2.3)	85 (2.0)	15 (2.0)
New Jersey	32 (3.9)	290 (1.1)	9 (1.0)	45 (1.9)	86 (1.2)	14 (1.2)
New Mexico	36 (0.7)	271 (1.4)	3 (0.8)	23 (2.2)	69 (2.1)	31 (2.1)
New York	29 (3.5)	281 (1.2)	6 (1.0)	32 (1.5)	79 (1.7)	21 (1.7)
North Carolina	33 (4.2)	265 (1.2)	1 (0.7)	21 (1.7)	62 (1.6)	38 (1.6)
North Dakota	42 (2.9)	291 (1.3)	6 (1.3)	45 (3.0)	90 (1.3)	10 (1.3)
Ohio	33 (4.2)	278 (1.1)	4 (0.8)	30 (1.6)	77 (1.3)	23 (1.3)
Oklahoma	33 (4.0)	277 (1.2)	4 (1.1)	30 (1.7)	75 (1.5)	25 (1.5)
Pennsylvania	32 (4.8)	284 (1.5)	5 (1.2)	37 (2.4)	83 (1.4)	17 (1.4)
Rhode Island	30 (0.6)	278 (1.2)	4 (0.7)	33 (2.0)	76 (1.7)	24 (1.7)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	34 (4.5)	275 (1.3)	4 (0.8)	26 (2.1)	73 (1.6)	27 (1.6)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	36 (3.7)	286 (2.3)	10 (1.8)	40 (3.1)	80 (1.7)	20 (1.7)
West Virginia	35 (5.1)	267 (1.1)	2 (0.6)	20 (1.4)	63 (1.3)	37 (1.3)
Wisconsin	34 (4.5)	288 (1.2)	7 (1.1)	43 (2.5)	85 (1.5)	15 (1.5)
Wyoming	23 (0.5)	282 (1.1)	4 (0.8)	34 (2.6)	81 (2.4)	19 (2.4)
TERRITORIES						
Guam	15 (0.2)	237 (2.1)	0 (0.5)	7 (2.1)	29 (2.5)	71 (2.5)
Virgin Islands	29 (0.2)	231 (1.3)	0 (0.3)	3 (1.3)	20 (1.9)	80 (1.9)

(xxx) Did not participate in the 1990 Trial State Assessment.

TABLE 2.19 Average Mathematics Proficiency and Achievement Levels for the Bottom One-Third of the Schools

PUBLIC SCHOOLS	Grade 4 - 1992					
	Percentage of Students	Average Proficiency	Percentage of Students At or Above Advanced	Percentage of Students At or Above Proficient	Percentage of Students At or Above Basic	Percentage of Students Below Basic
NATION	23 (1.6)	192 (1.0)	0 (0.1)	2 (0.4)	26 (1.5)	74 (1.5)
Northeast	24 (3.8)	194 (2.1)	0 (0.3)	4 (1.3)	28 (2.4)	72 (2.4)
Southeast	38 (4.3)	192 (1.9)	0 (0.1)	2 (0.6)	26 (2.6)	74 (2.6)
Central	12 (3.3)	190 (3.2)!	0 (0.0)!	1 (0.6)!	25 (4.7)!	75 (4.7)!
West	20 (2.6)	190 (1.3)	0 (0.1)	2 (0.5)	25 (1.9)	75 (1.9)
STATES						
Alabama	32 (4.5)	188 (1.1)	0 (0.0)	2 (0.5)	21 (1.6)	79 (1.6)
Arizona	35 (3.7)	197 (1.6)	0 (0.2)	3 (1.0)	32 (2.3)	68 (2.3)
Arkansas	32 (3.7)	194 (1.5)	0 (0.2)	4 (0.9)	30 (2.2)	70 (2.2)
California	31 (3.9)	183 (2.2)	0 (0.1)	2 (0.7)	23 (2.3)	77 (2.3)
Colorado	32 (3.3)	205 (1.0)	0 (0.3)	7 (1.1)	43 (2.0)	57 (2.0)
Connecticut	30 (3.2)	203 (2.4)	0 (0.2)	7 (1.3)	39 (3.6)	61 (3.6)
Delaware	40 (0.3)	207 (1.4)	1 (0.5)	10 (1.2)	44 (1.7)	56 (1.7)
Dist. Columbia	38 (0.3)	175 (0.8)	0 (0.0)	0 (0.1)	9 (1.0)	91 (1.0)
Florida	33 (4.0)	194 (1.9)	0 (0.1)	3 (0.7)	31 (2.2)	69 (2.2)
Georgia	36 (3.4)	196 (1.2)	0 (0.2)	5 (1.0)	32 (2.1)	68 (2.1)
Hawaii	34 (4.6)	197 (1.4)	0 (0.2)	6 (1.0)	36 (1.9)	64 (1.9)
Idaho	34 (5.2)	211 (1.2)	0 (0.3)	9 (1.3)	51 (1.9)	49 (1.9)
Indiana	33 (4.6)	206 (1.2)	0 (0.2)	5 (0.9)	42 (2.0)	58 (2.0)
Iowa	33 (4.1)	217 (1.2)	1 (0.4)	15 (1.5)	60 (1.9)	40 (1.9)
Kentucky	32 (3.6)	201 (0.9)	0 (0.1)	4 (0.7)	36 (1.9)	64 (1.9)
Louisiana	33 (4.1)	181 (2.1)	0 (0.1)	1 (0.6)	14 (1.6)	86 (1.6)
Maine	34 (5.7)	221 (0.9)	1 (0.5)	17 (1.3)	65 (1.7)	35 (1.7)
Maryland	35 (3.6)	195 (2.1)	0 (0.2)	5 (1.0)	32 (2.4)	68 (2.4)
Massachusetts	28 (3.8)	203 (1.9)	0 (0.2)	6 (1.3)	41 (2.6)	59 (2.6)
Michigan	33 (4.4)	197 (2.9)	0 (0.2)	6 (1.2)	35 (3.3)	65 (3.3)
Minnesota	38 (4.7)	217 (1.4)	2 (0.6)	16 (1.2)	59 (2.5)	41 (2.5)
Mississippi	36 (3.4)	183 (1.6)	0 (0.1)	1 (0.3)	18 (1.6)	82 (1.6)
Missouri	32 (3.9)	204 (1.9)	0 (0.2)	6 (1.1)	42 (2.3)	58 (2.3)
Nebraska	33 (4.4)	209 (1.1)	0 (0.3)	9 (1.6)	49 (2.5)	51 (2.5)
New Hampshire	32 (4.6)	215 (1.1)	0 (0.3)	11 (1.7)	59 (2.4)	41 (2.4)
New Jersey	31 (3.1)	202 (2.7)	0 (0.3)	6 (1.6)	38 (4.1)	62 (4.1)
New Mexico	35 (5.3)	197 (1.4)	0 (0.2)	3 (0.8)	31 (2.7)	69 (2.7)
New York	37 (4.6)	198 (2.1)	0 (0.2)	5 (1.0)	34 (3.2)	66 (3.2)
North Carolina	34 (4.5)	197 (1.0)	0 (0.1)	5 (0.8)	35 (1.9)	65 (1.9)
North Dakota	34 (3.9)	218 (0.9)	1 (0.4)	12 (1.6)	61 (1.7)	39 (1.7)
Ohio	29 (3.6)	199 (1.9)	0 (0.2)	5 (0.9)	33 (2.8)	67 (2.8)
Oklahoma	30 (3.8)	207 (1.2)	0 (0.3)	6 (1.2)	44 (2.4)	56 (2.4)
Pennsylvania	30 (3.9)	202 (2.2)	0 (0.2)	6 (1.2)	40 (3.3)	60 (3.3)
Rhode Island	32 (4.1)	192 (2.4)	0 (0.2)	2 (1.1)	26 (2.5)	74 (2.5)
South Carolina	31 (3.7)	194 (1.4)	0 (0.1)	3 (0.8)	26 (2.2)	74 (2.2)
Tennessee	33 (4.4)	193 (1.8)	0 (0.1)	2 (0.8)	27 (2.3)	73 (2.3)
Texas	33 (3.8)	200 (1.5)	0 (0.3)	5 (1.1)	36 (2.4)	64 (2.4)
Utah	35 (4.7)	211 (1.1)	0 (0.2)	9 (1.2)	53 (2.1)	47 (2.1)
Virginia	34 (3.6)	202 (1.2)	0 (0.2)	5 (0.7)	38 (1.9)	62 (1.9)
West Virginia	33 (4.0)	202 (1.1)	0 (0.2)	4 (0.9)	39 (1.7)	61 (1.7)
Wisconsin	32 (4.5)	214 (1.5)	1 (0.3)	12 (1.2)	56 (2.0)	44 (2.0)
Wyoming	37 (5.0)	215 (1.2)	1 (0.3)	12 (1.3)	57 (2.3)	43 (2.3)
TERRITORY						
Guam	37 (0.2)	180 (1.5)	0 (0.2)	3 (0.5)	18 (1.7)	82 (1.7)

The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. ! Interpret with caution - the nature of the sample does not allow accurate determination of the variability of this estimated statistic.

TABLE 2.19 Average Mathematics Proficiency and Achievement Levels for the Bottom One-Third of the Schools (continued)

PUBLIC SCHOOLS	Grade 8 - 1992					
	Percentage of Students	Average Proficiency	Percentage of Students At or Above Advanced	Percentage of Students At or Above Proficient	Percentage of Students At or Above Basic	Percentage of Students Below Basic
NATION	25 (1.9)	240 (1.4)	0 (0.1)	6 (1.0)	30 (2.1)	70 (2.1)
Northeast	29 (3.8)	237 (2.6)	0 (0.2)	4 (1.7)	24 (4.3)	76 (4.3)
Southeast	37 (5.5)	242 (2.8)	1 (0.4)	7 (1.9)	34 (3.8)	66 (3.8)
Central	14 (2.6)	240 (3.6)	0 (0.3)	5 (1.4)	30 (5.3)	70 (5.3)
West	20 (3.7)	240 (1.7)	0 (0.3)	6 (1.1)	30 (1.9)	70 (1.9)
STATES						
Alabama	36 (4.7)	234 (2.9)	0 (0.2)	3 (0.9)	24 (2.5)	76 (2.5)
Arizona	32 (3.7)	247 (2.0) >	0 (0.4)	7 (0.9)	40 (3.2)	60 (3.2)
Arkansas	33 (4.1)	240 (1.4)	0 (0.3)	5 (0.7)	32 (1.8)	68 (1.8)
California	33 (4.1)	236 (2.0)	0 (0.2)	5 (1.1)	29 (2.2)	71 (2.2)
Colorado	34 (4.0)	257 (1.3) >	0 (0.4)	14 (1.3)	52 (1.8)	48 (1.8)
Connecticut	36 (3.2)	251 (2.1)	1 (0.2)	11 (1.6)	44 (2.5)	56 (2.5)
Delaware	41 (0.2)«	255 (1.3) >	1 (0.4)	13 (1.4)	48 (2.2)	52 (2.2)
Dist. Columbia	38 (0.4)	219 (1.1)	0 (0.0)	1 (0.3)	12 (1.3)	88 (1.3)
Florida	34 (3.8)	241 (2.4)	1 (0.3)	7 (1.0)	35 (2.8)	65 (2.8)
Georgia	34 (3.9)	242 (1.3)	0 (0.1)	6 (1.2)	34 (1.8)	66 (1.8)
Hawaii	31 (0.3)«	241 (1.3)»	1 (0.4)	8 (1.1) >	35 (2.2) >	65 (2.2) <
Idaho	34 (3.5)	266 (1.1) >	1 (0.4)	18 (1.2)	64 (2.1)	36 (2.1)
Indiana	32 (3.6)	254 (1.6)	1 (0.5)	12 (1.3)	48 (2.5)	52 (2.5)
Iowa	33 (4.6)	272 (1.1) >	2 (0.6)	25 (1.7) >	69 (1.8)	31 (1.8)
Kentucky	36 (4.6)	250 (1.1)	1 (0.3)	9 (1.0)	44 (1.9) >	56 (1.9) <
Louisiana	32 (4.2)	229 (2.1)	0 (0.1)	2 (0.7)	19 (2.0)	81 (2.0)
Maine	37 (4.7)	269 (1.1)	2 (0.7)	23 (2.2)	68 (1.7)	32 (1.7)
Maryland	34 (3.4)	241 (2.6)	0 (0.2)	7 (1.7)	34 (3.2)	66 (3.2)
Massachusetts	33 (3.3)	251 (1.7)	1 (0.5)	10 (1.3)	44 (2.7)	56 (2.7)
Michigan	33 (3.4)	242 (1.9)	0 (0.2)	7 (1.3)	34 (2.7)	66 (2.7)
Minnesota	33 (5.5)	272 (1.1)»	3 (0.7)	26 (1.9) >	68 (2.1)	32 (2.1)
Mississippi	33 (2.9)	228 (1.1)	0 (0.1)	3 (0.5)	18 (1.4)	82 (1.4)
Missouri	34 (4.8)	257 (2.0)	1 (0.3)	12 (1.4)	52 (2.8)	48 (2.8)
Nebraska	39 (4.7)	266 (1.3) >	2 (0.4)	20 (1.8)	63 (2.0)	37 (2.0)
New Hampshire	35 (4.1)	268 (1.0)»	1 (0.3)	19 (1.8)	68 (1.4) >	32 (1.4) <
New Jersey	34 (4.1)	245 (3.2)	0 (0.2)	6 (1.8)	37 (4.2)	63 (4.2)
New Mexico	29 (3.3)	245 (1.2) >	0 (0.2)	5 (1.3)	37 (1.8)	63 (1.8)
New York	39 (4.8)	241 (3.9)	1 (0.4)	8 (1.5)	36 (4.3)	64 (4.3)
North Carolina	33 (4.9)	244 (1.5)»	1 (0.3)	7 (1.2)	37 (1.9)»	63 (1.9)«
North Dakota	37 (4.3)	275 (1.4)»	3 (0.8)	25 (1.8)	76 (2.4)	24 (2.4)
Ohio	31 (4.4)	246 (2.1)	0 (0.2)	7 (1.0)	39 (2.4)	61 (2.4)
Oklahoma	35 (5.0)	255 (1.5) >	0 (0.3)	10 (1.5)	49 (3.0)	51 (3.0)
Pennsylvania	33 (4.0)	253 (2.1)	1 (0.6)	11 (1.2)	47 (2.7)	53 (2.7)
Rhode Island	32 (0.1)«	247 (1.4)	1 (0.3)	7 (1.5)	40 (2.4)	60 (2.4)
South Carolina	33 (3.7)	244 (1.2)	1 (0.4)	7 (1.1)	35 (2.1)	65 (2.1)
Tennessee	33 (4.6)	243 (1.8)	0 (0.1)	6 (1.0)	34 (2.3)	66 (2.3)
Texas	33 (4.0)	246 (1.1) >	1 (0.3)	8 (1.1)	38 (1.4) >	62 (1.4) <
Utah	35 (4.3)	265 (0.8)	1 (0.6)	20 (1.8)	61 (1.7)	39 (1.7)
Virginia	34 (4.2)	248 (1.2) >	0 (0.3)	7 (0.8)	40 (1.7)	60 (1.7)
West Virginia	33 (5.0)	248 (1.1) >	0 (0.1)	7 (1.0)	39 (1.8)	61 (1.8)
Wisconsin	31 (4.3)	261 (2.3)	1 (0.3)	16 (1.5)	58 (3.2)	42 (3.2)
Wyoming	29 (3.4)	265 (1.8)	1 (0.5)	17 (2.0)	62 (3.1)	38 (3.1)
TERRITORIES						
Guam	45 (0.3)	229 (1.8)	0 (0.3)	6 (0.8)	25 (2.1)	75 (2.1)
Virgin Islands	52 (0.1)»	214 (1.3) >	0 (0.0)	0 (0.3)	9 (1.0) >	91 (1.0) <

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated. (xxx) Did not participate in the 1990 Trial State Assessment.

TABLE 2.19 | Average Mathematics Proficiency and Achievement Levels for the Bottom One-Third of the Schools (continued)

PUBLIC SCHOOLS	Grade 8 - 1990					
	Percentage of Students	Average Proficiency	Percentage of Students At or Above Advanced	Percentage of Students At or Above Proficient	Percentage of Students At or Above Basic	Percentage of Students Below Basic
NATION	35 (4.2)	243 (1.8)	1 (0.3)	8 (1.3)	36 (2.0)	64 (2.0)
Northeast	24(11.6)	248 (6.0)!	0 (1.1)!	10 (3.8)!	40 (7.0)!	60 (7.0)!
Southeast	63 (9.4)	245 (2.8)	1 (0.4)	9 (1.5)	37 (3.0)	63 (3.0)
Central	22 (4.8)	236 (3.7)!	0 (0.0)!	3 (2.2)!	27 (3.9)!	73 (3.9)!
West	31 (7.5)	243 (3.7)!	1 (0.6)!	8 (2.9)!	37 (4.4)!	63 (4.4)!
STATES						
Alabama	34 (4.3)	237 (1.3)	0 (0.3)	4 (0.8)	29 (2.1)	71 (2.1)
Arizona	33 (4.0)	241 (1.8)	0 (0.2)	5 (1.1)	33 (2.2)	67 (2.2)
Arkansas	36 (3.5)	242 (1.4)	0 (0.2)	5 (1.1)	32 (1.4)	68 (1.4)
California	33 (4.0)	236 (1.7)	0 (0.4)	6 (1.2)	28 (2.1)	72 (2.1)
Colorado	33 (3.1)	252 (1.6)	1 (0.3)	10 (1.3)	46 (2.0)	54 (2.0)
Connecticut	37 (3.5)	250 (1.4)	1 (0.3)	11 (1.1)	45 (2.0)	55 (2.0)
Delaware	43 (0.3)	250 (1.2)	0 (0.3)	9 (1.1)	43 (1.6)	57 (1.6)
Dist. Columbia	38 (0.3)	219 (1.1)	0 (0.0)	0 (0.1)	9 (1.2)	91 (1.2)
Florida	33 (4.0)	239 (1.6)	0 (0.2)	6 (1.0)	31 (2.1)	69 (2.1)
Georgia	36 (4.6)	243 (1.1)	0 (0.2)	7 (0.7)	36 (1.8)	64 (1.8)
Hawaii	32 (0.2)	234 (1.3)	0 (0.2)	4 (0.9)	28 (1.9)	72 (1.9)
Idaho	29 (0.8)	261 (1.7)	1 (0.4)	14 (1.8)	56 (3.4)	44 (3.4)
Indiana	34 (4.3)	254 (1.7)	1 (0.3)	10 (1.1)	46 (2.4)	54 (2.4)
Iowa	38 (5.1)	268 (1.1)	1 (0.7)	19 (1.2)	66 (1.6)	34 (1.6)
Kentucky	36 (4.8)	246 (1.4)	1 (0.4)	9 (1.1)	36 (2.4)	64 (2.4)
Louisiana	34 (3.2)	229 (1.4)	0 (0.0)	1 (0.4)	17 (1.5)	83 (1.5)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	35 (3.3)	239 (1.6)	0 (0.2)	6 (0.8)	31 (2.4)	69 (2.4)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	34 (4.2)	244 (1.9)	0 (0.1)	5 (1.3)	37 (3.1)	63 (3.1)
Minnesota	36 (4.4)	265 (1.3)	2 (0.5)	19 (1.5)	63 (2.0)	37 (2.0)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	36 (3.2)	261 (1.3)	1 (0.5)	15 (1.1)	59 (2.0)	41 (2.0)
New Hampshire	36 (0.9)	262 (1.5)	1 (0.3)	14 (1.5)	58 (3.5)	42 (3.5)
New Jersey	32 (3.7)	246 (2.7)	0 (0.3)	7 (1.5)	35 (3.4)	65 (3.4)
New Mexico	28 (0.8)	241 (1.0)	0 (0.0)	3 (0.8)	32 (1.7)	68 (1.7)
New York	40 (3.6)	239 (2.3)	1 (0.4)	7 (1.2)	31 (2.4)	69 (2.4)
North Carolina	35 (3.9)	236 (1.1)	0 (0.1)	4 (0.8)	28 (1.5)	72 (1.5)
North Dakota	29 (2.7)	267 (1.6)	2 (0.8)	19 (2.1)	67 (3.3)	33 (3.3)
Ohio	34 (3.6)	248 (1.2)	1 (0.5)	8 (1.1)	40 (2.5)	60 (2.5)
Oklahoma	33 (4.4)	249 (1.5)	0 (0.1)	6 (1.0)	41 (2.0)	59 (2.0)
Pennsylvania	36 (4.2)	249 (2.2)	1 (0.4)	10 (1.4)	43 (2.9)	57 (2.9)
Rhode Island	40 (0.8)	244 (0.8)	1 (0.4)	9 (1.1)	37 (1.2)	63 (1.2)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	32 (4.5)	241 (2.0)	0 (0.3)	6 (0.9)	31 (2.4)	69 (2.4)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	33 (3.7)	244 (1.3)	0 (0.1)	5 (1.2)	35 (1.8)	65 (1.8)
West Virginia	32 (3.9)	245 (0.8)	0 (0.2)	5 (0.8)	35 (1.5)	65 (1.5)
Wisconsin	35 (4.0)	259 (2.0)	1 (0.4)	14 (1.4)	54 (2.6)	46 (2.6)
Wyoming	35 (0.7)	264 (1.1)	1 (0.4)	15 (1.5)	61 (2.1)	39 (2.1)
TERRITORIES						
Guam	45 (0.2)	227 (1.2)	0 (0.2)	4 (0.8)	23 (1.7)	77 (1.7)
Virgin Islands	50 (0.2)	209 (1.3)	0 (0.0)	0 (0.2)	5 (1.0)	95 (1.0)

(xxx) Did not participate in the 1990 Trial State Assessment.

TABLE 2.20 | Percentages of Students Within Selected Demographic Subgroups in the Top One-Third of the Schools

PUBLIC SCHOOLS	Grade 4 - 1992								
	Percentage of Students by Race/Ethnicity					Percentage of Students by Type of Community			
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	55 (3.9)	11 (2.3)!	19 (3.2)	54 (7.0)!	28 (6.2)!	91 (5.0)!	3 (2.6)!	46(11.5)!	44 (4.0)
Northeast	73 (8.4)	22 (6.4)!	23 (4.8)!	*** (***)	*** (***)	94 (5.5)!	10 (5.7)!	*** (***)	61 (8.6)
Southeast	29 (7.9)!	7 (3.3)!	10 (5.2)!	*** (***)	*** (***)	79(22.1)!	0 (0.0)	21(14.7)!	21 (7.1)!
Central	65 (9.1)	7 (4.1)!	35 (9.4)!	*** (***)	*** (***)	81(21.2)!	0 (0.0)	75(20.0)!	57 (9.0)
West	53 (5.5)	16 (3.9)!	16 (4.7)!	59 (8.9)!	*** (***)	100 (0.0)!	0 (0.0)	42(20.1)!	40 (7.0)
STATES									
Alabama	43 (6.3)	13 (3.6)!	22 (6.3)!	*** (***)	*** (***)	90(10.7)!	5 (5.0)!	18(12.2)!	38 (6.8)!
Arizona	49 (3.7)	18 (5.0)!	17 (2.4)	*** (***)	13 (4.2)!	80(13.7)!	24(16.1)!	14(11.8)!	29 (5.2)!
Arkansas	42 (4.6)	6 (1.4)!	26 (4.4)	*** (***)	51 (9.0)!	*** (***)	0 (0.0)	38(10.1)!	35 (4.3)
California	48 (6.4)	19 (5.3)!	16 (3.5)!	44 (6.9)!	41(11.7)!	100 (0.0)!	9 (6.1)!	*** (***)	30 (6.2)!
Colorado	42 (4.7)	12 (3.8)!	18 (3.2)	40 (5.9)	23 (5.8)!	75 (9.2)!	0 (0.0)	39(11.9)!	31 (6.0)!
Connecticut	44 (4.6)	9 (2.8)!	11 (3.0)!	*** (***)	*** (***)	68(10.4)!	3 (3.4)!	*** (***)	38 (6.8)!
Delaware	32 (0.8)	30 (1.9)	23 (2.2)	*** (***)	*** (***)	50 (0.8)	0 (0.0)	13 (0.2)	40 (0.3)
Dist. Columbia	83 (4.2)	27 (0.4)	26 (1.9)	*** (***)	*** (***)	93 (0.5)	17 (0.4)	*** (***)	27 (0.6)
Florida	45 (4.9)	13 (3.6)!	25 (5.5)!	*** (***)	*** (***)	78(11.1)!	0 (0.0)	25(26.1)!	36 (5.6)
Georgia	46 (5.2)	10 (3.0)!	23 (4.8)!	*** (***)	*** (***)	100 (0.0)!	0 (0.0)	20(11.5)!	31 (5.8)
Hawaii	38 (5.5)	26 (6.2)!	24 (4.2)	31 (4.6)	*** (***)	64(15.3)!	0 (0.0)	3 (3.5)!	34 (6.1)
Idaho	35 (4.6)	*** (***)	21 (4.0)	*** (***)	24 (5.9)!	100 (0.0)!	*** (***)	15 (6.2)!	38 (7.1)!
Indiana	37 (4.8)	12 (5.4)!	21 (6.0)!	*** (***)	*** (***)	100 (0.0)!	0 (0.0)	22(11.0)!	33 (6.1)!
Iowa	34 (4.7)	18 (6.9)!	35 (6.4)!	*** (***)	*** (***)	83(17.8)!	0 (0.0)	29 (6.8)!	40 (8.2)!
Kentucky	35 (3.5)	39 (8.0)!	29 (6.5)!	*** (***)	*** (***)	100 (0.0)!	16(11.8)!	40(10.0)!	33 (5.3)
Louisiana	53 (5.3)	17 (3.2)	36 (7.1)!	*** (***)	*** (***)	100 (0.0)!	6 (5.6)!	42(12.0)!	39 (5.7)
Maine	32 (4.9)	*** (***)	22 (7.2)!	*** (***)	*** (***)	*** (***)	*** (***)	37(13.6)!	30 (6.4)!
Maryland	42 (4.1)	11 (2.9)!	26 (5.7)!	52 (9.4)!	*** (***)	63(10.6)	0 (0.0)	28(26.8)!	24 (5.2)!
Massachusetts	42 (4.8)	6 (1.9)!	21 (4.7)!	30 (7.2)!	*** (***)	81 (9.6)!	0 (0.0)	*** (***)	39 (6.8)
Michigan	40 (6.0)	9 (3.6)!	26 (5.7)!	*** (***)	26 (7.6)!	85(15.9)!	6 (5.8)!	19(12.5)!	39 (6.7)
Minnesota	32 (4.4)	9 (3.2)!	21 (3.9)	*** (***)	*** (***)	64(19.3)!	*** (***)	17 (7.7)!	23 (6.4)!
Mississippi	55 (4.5)	13 (2.1)	19 (4.0)	*** (***)	*** (***)	*** (***)	7 (6.3)!	33 (9.4)!	32 (3.5)
Missouri	42 (5.2)	18 (3.2)	32 (5.4)	*** (***)	*** (***)	89(11.3)!	6 (6.4)!	22 (8.5)!	43 (7.8)!
Nebraska	37 (5.1)	10 (3.0)!	25 (6.0)!	*** (***)	*** (***)	100 (0.0)!	0 (0.0)	32 (9.9)!	26 (6.1)!
New Hampshire	34 (5.1)	*** (***)	19 (6.1)!	*** (***)	*** (***)	55(23.9)!	*** (***)	63(16.9)!	32 (5.3)
New Jersey	47 (5.8)	6 (1.6)!	20 (3.4)	55 (9.0)!	*** (***)	86 (8.0)	0 (0.0)	*** (***)	26 (6.6)!
New Mexico	50 (6.9)	36 (8.8)!	19 (3.7)	*** (***)	13 (7.5)!	100 (0.0)!	0 (0.0)	0 (0.0)	34 (6.1)!
New York	44 (4.6)	7 (3.1)!	11 (2.6)!	35(10.1)!	*** (***)	64(13.0)!	0 (0.0)	*** (***)	36 (7.3)!
North Carolina	41 (4.7)	21 (3.5)	38 (8.0)!	*** (***)	21(10.5)!	100 (0.0)!	17(18.5)!	34(11.6)!	30 (5.1)
North Dakota	35 (4.4)	*** (***)	35 (9.0)!	*** (***)	20 (7.3)!	80(10.4)!	*** (***)	24 (6.4)!	26 (7.2)!
Ohio	37 (4.3)	9 (2.7)!	29 (5.0)	*** (***)	28 (6.9)!	89 (9.3)!	4 (3.7)!	19 (9.9)!	42 (6.8)
Oklahoma	41 (4.8)	16 (4.9)!	36 (7.2)!	*** (***)	29 (5.2)	64(19.3)!	12(12.0)!	39(10.6)!	38 (6.9)!
Pennsylvania	39 (5.2)	5 (1.5)!	19 (4.1)!	*** (***)	*** (***)	59(16.3)!	0 (0.0)	25(12.4)!	34 (6.8)!
Rhode Island	42 (5.7)	5 (2.4)!	16 (3.1)!	7 (3.8)!	*** (***)	90 (8.8)!	0 (0.0)	*** (***)	40 (7.5)!
South Carolina	49 (5.0)	19 (3.6)	29 (6.2)	*** (***)	*** (***)	100 (0.0)!	0 (0.0)	5 (5.3)!	38 (5.4)
Tennessee	40 (4.2)	18 (4.6)!	24 (6.3)!	*** (***)	*** (***)	84(17.5)!	0 (0.0)	18(11.5)!	36 (5.7)
Texas	54 (6.4)	14 (4.2)!	22 (5.3)!	47 (9.5)!	*** (***)	100 (0.0)!	19(11.7)!	69(16.6)!	24 (6.4)!
Utah	33 (4.3)	*** (***)	20 (4.6)!	*** (***)	*** (***)	73(10.1)!	0 (0.0)	28(16.7)!	25 (5.4)!
Virginia	44 (4.8)	10 (2.8)!	31 (7.0)!	48 (8.7)!	*** (***)	73(14.8)!	0 (0.0)	7 (6.0)!	37 (7.2)!
West Virginia	35 (4.0)	31 (8.0)!	41 (7.2)!	*** (***)	*** (***)	*** (***)	27(16.3)!	21 (9.6)!	35 (5.3)
Wisconsin	37 (5.4)	13 (5.9)!	28 (5.8)	*** (***)	13 (8.3)!	65(19.3)!	0 (0.0)	28 (8.9)!	39 (7.5)!
Wyoming	31 (4.2)	*** (***)	25 (4.8)!	*** (***)	14 (5.2)!	62(12.1)!	0 (0.0)	50(11.3)!	26 (5.8)!
TERRITORY									
Guam	44 (2.7)	39 (5.6)	24 (1.7)	33 (0.7)	*** (***)	*** (***)	*** (***)	0 (0.0)	45 (0.2)

The standard errors of the estimated percentages appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. ***The number of schools or students was considered insufficient for this analysis. Underlying subgroup population proportions provided in previous tables should be considered in interpreting these results. ! Interpret with caution - the nature of the sample does not allow accurate determination of the variability of this estimated statistic.

TABLE 2.20 | Percentages of Students Within Selected Demographic Subgroups in the Top One-Third of the Schools (continued)

	Grade 4 - 1992						
	Percentage of Students by Parents' Highest Level of Education					Percentage of Students by Gender	
PUBLIC SCHOOLS	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Male	Female
NATION	55 (3.0)	40 (3.8)	36 (3.9)	25 (3.9)	38 (3.1)	44 (2.9)	44 (3.1)
Northeast	70 (6.1)	50(10.6)	53(10.0)	*** (***)	52 (6.7)	61 (5.9)	57 (8.0)
Southeast	30 (6.7)!	20 (6.0)!	14 (6.2)!	10 (5.3)!	16 (3.6)!	20 (5.8)!	22 (4.8)!
Central	64 (7.3)	50 (9.2)	50(10.4)!	*** (***)	50 (9.5)	58 (8.1)	54 (8.6)
West	55 (4.4)	43 (7.1)!	35 (6.0)	21 (6.9)!	35 (5.1)	41 (4.4)	44 (4.6)
STATES							
Alabama	39 (5.3)	39 (7.5)!	32 (6.5)!	24 (6.0)!	29 (5.2)	34 (5.4)	33 (5.2)
Arizona	41 (3.5)	40 (4.5)	30 (4.1)	27 (5.7)!	32 (3.1)	35 (3.0)	35 (3.1)
Arkansas	35 (4.0)	36 (5.1)	33 (4.5)	35 (5.7)	31 (3.7)	35 (3.9)	32 (3.7)
California	47 (6.1)	29 (5.4)	32 (6.0)!	14 (4.4)!	28 (4.4)	34 (4.9)	35 (4.8)
Colorado	46 (4.7)	31 (5.3)	23 (4.3)	17 (4.8)!	29 (3.9)	33 (4.1)	36 (4.1)
Connecticut	46 (4.8)	31 (5.5)	21 (3.3)	13 (3.8)!	30 (3.9)	36 (4.1)	35 (4.0)
Delaware	38 (1.2)	26 (3.5)	33 (3.8)	20 (5.1)!	25 (1.2)	29 (1.0)	32 (1.0)
Dist. Columbia	38 (1.1)	32 (3.6)	23 (2.0)	12 (3.6)!	26 (1.0)	29 (1.0)	31 (1.0)
Florida	42 (5.4)	38 (5.4)	23 (4.0)	25 (6.5)!	31 (4.3)	36 (4.8)	32 (4.2)
Georgia	39 (5.0)	35 (5.4)	22 (4.2)	20 (5.0)!	31 (4.4)	31 (4.4)	33 (4.3)
Hawaii	38 (4.9)	36 (5.4)	26 (4.2)	8 (3.5)!	29 (4.3)	31 (4.2)	33 (4.3)
Idaho	39 (4.9)	35 (6.3)	24 (4.4)	15 (4.5)!	32 (4.3)	34 (4.4)	32 (4.5)
Indiana	41 (4.9)	38 (5.6)	27 (4.8)	20 (5.6)!	31 (4.7)	33 (4.5)	35 (4.7)
Iowa	40 (5.1)	36 (5.5)	28 (4.9)	15 (4.3)!	31 (5.1)	35 (4.8)	33 (4.7)
Kentucky	47 (4.8)	30 (4.5)	31 (3.7)	19 (4.0)!	34 (3.6)	36 (3.9)	34 (3.4)
Louisiana	44 (4.6)	45 (5.7)	27 (4.1)	22 (4.8)!	33 (4.6)	37 (4.3)	35 (4.3)
Maine	39 (6.2)	28 (5.8)!	25 (4.3)	23 (5.9)!	26 (4.8)	32 (5.1)	30 (4.8)
Maryland	40 (4.1)	36 (5.0)	21 (3.5)	17 (4.2)!	27 (3.9)	34 (3.7)	30 (3.6)
Massachusetts	48 (4.7)	37 (7.1)!	27 (4.9)	6 (3.1)!	27 (4.4)	37 (4.3)	37 (4.6)
Michigan	45 (6.1)	33 (6.9)!	26 (5.4)	27 (6.9)!	28 (4.8)	35 (5.4)	34 (5.1)
Minnesota	37 (4.5)	34 (6.4)!	21 (4.1)	*** (***)	28 (4.0)	31 (4.1)	31 (4.1)
Mississippi	33 (3.3)	32 (5.0)	29 (4.4)	26 (4.8)!	31 (3.4)	31 (3.0)	31 (2.9)
Missouri	47 (4.5)	31 (5.3)	29 (5.7)!	24 (6.6)!	35 (5.0)	38 (4.8)	37 (4.6)
Nebraska	42 (5.3)	37 (6.2)	28 (5.1)	*** (***)	28 (4.7)	34 (4.9)	35 (5.0)
New Hampshire	40 (6.1)	34 (5.9)!	28 (5.3)!	17 (5.4)!	28 (4.3)	35 (5.3)	31 (4.8)
New Jersey	49 (5.4)	32 (5.7)	27 (5.0)	22 (5.9)!	25 (3.9)	39 (4.6)	35 (4.5)
New Mexico	49 (6.3)	35 (7.2)!	23 (5.0)!	18 (5.1)!	28 (4.6)	32 (5.2)	35 (5.4)
New York	42 (4.6)	42 (5.5)	29 (6.1)!	18 (4.6)!	21 (3.2)	32 (3.7)	31 (3.7)
North Carolina	38 (4.6)	40 (5.9)	29 (4.0)	29 (5.3)	32 (4.6)	34 (4.0)	35 (4.5)
North Dakota	37 (4.4)	35 (5.9)	31 (5.5)	*** (***)	32 (4.8)	36 (4.7)	33 (4.3)
Ohio	47 (4.4)	40 (6.8)	22 (3.5)	17 (3.9)!	27 (3.9)	34 (4.0)	33 (4.0)
Oklahoma	45 (5.2)	38 (5.8)	28 (4.3)	24 (5.0)!	34 (4.8)	37 (4.5)	36 (4.6)
Pennsylvania	43 (5.2)	37 (5.4)	27 (5.2)	20 (5.9)!	27 (4.3)	33 (4.8)	34 (4.4)
Rhode Island	46 (5.5)	36 (6.6)!	31 (6.4)!	25 (6.2)!	28 (4.8)	34 (5.0)	36 (5.0)
South Carolina	46 (4.3)	36 (5.6)	28 (4.7)	25 (5.1)!	31 (4.4)	35 (4.3)	37 (4.2)
Tennessee	46 (5.3)	38 (5.5)	24 (3.7)	26 (4.4)	29 (4.0)	34 (4.1)	35 (4.2)
Texas	47 (5.3)	42 (6.8)	31 (5.7)!	24 (5.1)!	33 (4.8)	40 (4.8)	35 (4.7)
Utah	42 (4.7)	31 (4.5)	13 (3.9)!	11 (4.0)!	28 (4.4)	30 (4.0)	33 (4.3)
Virginia	46 (5.0)	32 (6.1)!	18 (3.2)	19 (4.3)!	31 (4.2)	35 (4.3)	36 (4.3)
West Virginia	47 (5.2)	40 (5.4)	27 (4.1)	22 (3.9)	31 (4.0)	34 (4.2)	36 (4.1)
Wisconsin	40 (5.3)	34 (6.1)	33 (5.6)	28 (7.2)!	29 (4.9)	35 (5.4)	33 (4.9)
Wyoming	34 (4.6)	34 (5.9)!	25 (4.1)	20 (5.1)!	27 (4.4)	30 (4.1)	29 (4.1)
TERRITORY							
Guam	31 (1.2)	42 (4.5)	32 (3.4)	33 (4.5)	34 (1.0)	34 (1.0)	33 (1.1)

TABLE 2.20 | Percentages of Students Within Selected Demographic Subgroups in the Top One-Third of the Schools (continued)

PUBLIC SCHOOLS	Grade 8 - 1992								
	Percentage of Students by Race/Ethnicity					Percentage of Students by Type of Community			
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	48 (5.0)	12 (2.4)!	21 (3.9)	52 (9.5)!	38 (5.8)!	67(13.3)!	6 (4.0)!	46(14.8)!	40 (5.4)
Northeast	58(11.3)!	16 (5.1)!	15 (4.4)!	*** (***)	*** (***)	100 (0.0)!	0 (0.0)	*** (***)	38(10.6)!
Southeast	11 (5.3)!	6 (3.1)!	7 (3.9)!	*** (***)	*** (***)	0 (0.0)	13 (9.6)!	0 (0.0)	12 (5.6)!
Central	68 (9.0)	14 (6.0)!	43 (8.7)!	*** (***)	*** (***)	83(12.6)!	0 (0.0)	100 (0.0)!	59(10.4)!
West	56(12.6)!	20 (7.2)!	21 (5.7)!	51(15.4)!	*** (***)	56(27.9)!	12(10.2)!	41(21.9)!	48(12.7)!
STATES									
Alabama	43 (5.7)	11 (3.1)!	15 (5.2)!	*** (***)	*** (***)	30(35.4)!	7 (7.3)!	27(13.3)!	41 (6.3)
Arizona	48 (5.3)	27 (7.2)!	19 (5.1)!	*** (***)	11 (3.8)!	81(12.4)!	8 (8.8)!	8 (7.2)!	30 (5.9)!
Arkansas	40 (4.8)	5 (2.1)!	20 (3.9)	*** (***)	*** (***)	*** (***)	0 (0.0)	36(12.4)!	32 (5.3)
California	48 (5.9)	15 (5.2)!	16 (3.2)!	46 (6.9)	*** (***)	100 (0.0)!	3 (2.7)!	*** (***)	36 (6.8)!
Colorado	41 (4.6)	8 (3.4)!	14 (3.2)!	*** (***)	*** (***)	73(10.9)!	0 (0.0)	28(14.6)!	30 (5.7)!
Connecticut	42 (3.7)	7 (2.0)!	9 (1.7)	41 (8.3)	*** (***)	38(16.7)!	0 (0.0)	*** (***)	38 (5.7) >
Delaware	30 (0.7) >	25 (1.9)	30 (4.3) >	*** (***)	*** (***)	*** (***)	*** (***)	33 (0.4) »	24 (0.3) »
Dist. Columbia	*** (***)	29 (0.7) >	37 (3.5)	*** (***)	*** (***)	100 (0.0)	7 (0.3) «	*** (***)	78 (0.8) »
Florida	48 (4.6)	21 (5.2)!	16 (3.7)	*** (***)	*** (***)	64(20.2)!	18(13.1)!	24(24.0)!	38 (5.2)
Georgia	45 (5.2)	16 (4.2)!	24 (8.0)!	*** (***)	*** (***)	67(16.1)!	0 (0.0)	0 (0.0)	40 (5.7)
Hawaii	42 (2.5) «	*** (***)	25 (2.0) «	37 (0.8) «	*** (***)	0 (0.0)	0 (0.0)	*** (***)	32 (0.3) «
Idaho	31 (4.0)	*** (***)	16 (3.8)!	*** (***)	24 (6.3)!	100 (0.0)!	50(24.0)!	28 (9.5)! >	31 (4.2) <
Indiana	37 (5.7)	12 (6.6)!	17 (5.7)!	*** (***)	*** (***)	100 (0.0)!	0 (0.0)	18(12.3)!	36 (6.4)!
Iowa	32 (4.7)	*** (***)	20 (4.5)!	*** (***)	*** (***)	64(37.8)!	0 (0.0)	42 (8.5)!	19 (6.2)!
Kentucky	33 (4.7)	28 (7.3)!	27 (7.3)!	*** (***)	*** (***)	100 (0.0)!	17(11.8)!	20(11.3)!	37 (5.9)
Louisiana	47 (6.6)	16 (3.3)	20 (5.1)!	*** (***)	*** (***)	*** (***)	4 (4.5)!	28(20.4)!	40 (5.9)
Maine	30 (4.6)	*** (***)	*** (***)	*** (***)	16 (6.0)!	*** (***)	*** (***)	14 (9.1)!	30 (5.4)
Maryland	44 (5.2)	9 (2.4)!	23 (4.0)	48 (9.0)!	*** (***)	80(10.9)!	0 (0.0)	*** (***)	27 (7.6)!
Massachusetts	39 (4.7)	13 (5.0)!	11 (3.8)!	*** (***)	*** (***)	82(13.1)!	0 (0.0)	*** (***)	43 (7.6)
Michigan	44 (6.1)	3 (1.0)!	23 (6.6)!	*** (***)	*** (***)	81(14.6)!	0 (0.0)	39(16.3)!	38 (7.7)!
Minnesota	36 (4.9)	*** (***)	23 (5.9)!	*** (***)	*** (***)	67(35.5)! >	*** (***)	16(10.1)! <	38 (7.4)! <
Mississippi	50 (6.5)	19 (3.8)!	13 (3.6)!	*** (***)	*** (***)	*** (***)	12(10.8)!	34(16.0)!	32 (5.5)
Missouri	33 (4.8)	18 (6.0)!	21 (5.2)!	*** (***)	*** (***)	65(22.6)!	17 (3.5)	19(10.0)!	32 (6.1)!
Nebraska	30 (5.1)	1 (0.7)!	19 (5.8)!	*** (***)	*** (***)	*** (***)	0 (0.0)	34(10.4)! <	23 (5.2)! >
New Hampshire	28 (4.5)	*** (***)	19 (6.0)!	*** (***)	*** (***)	100 (0.0)!	*** (***)	16(18.6)! <	22 (4.7)! <
New Jersey	41 (4.5)	4 (1.6)!	10 (2.5)!	53 (6.9)	*** (***)	86(14.1)!	0 (0.0)	*** (***)	35 (5.4)
New Mexico	42 (4.9)	*** (***)	21 (3.4)	*** (***)	16 (5.0)!	100 (0.0)	0 (0.0)	25(19.2)!	27 (5.0)
New York	40 (5.1)	5 (2.7)!	10 (2.7)!	36 (7.3)!	*** (***)	88(12.6)!	0 (0.0)	45(18.3)!	26 (7.0)!
North Carolina	39 (5.5)	22 (4.6)	27 (6.8)!	*** (***)	*** (***)	68(32.2)	25(17.4)!	17(11.8)!	32 (5.6)
North Dakota	27 (4.2) «	*** (***)	*** (***)	*** (***)	10 (4.6)!	0 (0.0)	*** (***)	33 (7.9)! <	16 (5.7)! «
Ohio	39 (6.1)	6 (2.2)!	23 (4.8)!	*** (***)	*** (***)	100 (0.0)!	0 (0.0)	36(20.6)!	36 (7.0)!
Oklahoma	36 (4.9)	15 (5.3)!	23 (4.5)	*** (***)	22 (5.5)!	*** (***)	0 (0.0)	8 (5.5)!	40 (5.9)
Pennsylvania	39 (4.7)	14 (7.9)!	22 (5.7)!	*** (***)	*** (***)	100 (0.0)!	0 (0.0)	43(16.0)!	41 (6.1)
Rhode Island	35 (0.4) >	7 (2.2)!	7 (1.6)!	26 (5.9)!	*** (***)	88 (0.5)	0 (0.0)	*** (***)	26 (0.3) »
South Carolina	43 (4.5)	18 (2.6)	13 (2.8)!	*** (***)	*** (***)	100 (0.0)!	15(16.1)!	55(18.4)!	28 (4.1)
Tennessee	38 (4.4)	17 (4.9)!	22 (8.3)!	*** (***)	*** (***)	100 (0.0)!	0 (0.0)	16(12.4)!	35 (5.3)
Texas	51 (5.9)	27 (7.0)!	16 (2.9)	69 (7.1)	*** (***)	100 (0.0)!	0 (0.0)	36(23.7)!	35 (6.3)
Utah	33 (4.0)	*** (***)	20 (3.9)	*** (***)	*** (***)	92 (8.0)	0 (0.0)	11(13.2)!	27 (4.7)
Virginia	37 (4.8)	15 (3.6)!	47 (8.4)!	52 (7.8)	*** (***)	87(15.7)!	10(10.1)!	0 (0.0)	27 (6.3)!
West Virginia	32 (4.9)	22 (8.8)!	21 (6.6)!	*** (***)	*** (***)	*** (***)	9(10.1)!	16 (9.9)!	38 (6.1)
Wisconsin	42 (5.2)	19 (9.9)!	26 (7.2)!	*** (***)	14 (6.4)!	89(15.0)!	0 (0.0)	45(17.6)!	31 (6.0)!
Wyoming	30 (3.4)	*** (***)	23 (3.6)	*** (***)	8 (4.1)!	*** (***)	39(12.4)!	36 (9.7)! <	22 (3.3) <
TERRITORIES									
Guam	10 (3.1)! «	*** (***)	9 (2.4)!	15 (0.6)	*** (***)	*** (***)	*** (***)	0 (0.0)	16 (0.2) «
Virgin Islands	*** (***)	30 (0.8) <	19 (2.1) >	*** (***)	*** (***)	*** (***)	*** (***)	0 (0.0)	0 (0.0)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

TABLE 2.20 | Percentages of Students Within Selected Demographic Subgroups in the Top One-Third of the Schools (continued)

PUBLIC SCHOOLS	Grade 8 - 1992						
	Percentage of Students by Parents' Highest Level of Education					Percentage of Students by Gender	
	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Male	Female
NATION	51 (4.8)	40 (4.8)	33 (4.2)	16 (3.0)	27 (3.6)	41 (4.1)	38 (4.2)
Northeast	56 (8.3)	44(10.5)!	44(11.4)!	25(12.0)!	25 (5.6)!	44 (8.8)	46 (9.2)!
Southeast	15 (7.5)!	9 (4.4)!	4 (2.1)!	2 (1.9)!	11 (5.4)!	9 (4.3)!	10 (4.7)!
Central	68 (8.1)	60 (7.3)	56 (9.7)!	*** (***)	45 (8.5)	61 (8.5)	58 (8.0)
West	60(10.8)!	45(12.5)!	33 (8.9)!	22 (5.0)!	28 (8.1)!	46 (9.4)!	44(10.0)!
STATES							
Alabama	40 (5.5)	33 (5.2)	29 (4.5)	24 (5.3)	20 (4.5)!	32 (4.6)	32 (4.8)
Arizona	52 (5.3)	38 (5.4)	28 (4.5)	14 (2.7)!	24 (5.4)!	36 (4.7)	38 (4.5)
Arkansas	34 (4.3)	38 (5.1)	29 (3.7)	28 (5.1)!	27 (5.3)	31 (4.1)	33 (4.0)
California	50 (5.5)	36 (5.3)	24 (4.5)	8 (2.3)!	19 (3.9)!	32 (4.2)	35 (4.8)
Colorado	45 (5.1)	33 (4.6)	22 (3.7)	17 (4.1)!	17 (3.7)!	34 (4.1)	35 (4.3)
Connecticut	50 (3.8)	24 (3.4)	18 (3.0)	11 (2.8)!	18 (3.3)	35 (3.2)	32 (3.2)
Delaware	35 (1.2)	26 (2.7)	27 (1.5)»	17 (2.9)	24 (4.4)	29 (0.9)	29 (0.9)
Dist. Columbia	51 (1.7)>	32 (2.4)	20 (1.4)	18 (3.0)	23 (2.4)	31 (1.2)	33 (1.7)
Florida	47 (4.6)	37 (4.8)	27 (3.8)	24 (4.5)	23 (3.8)	35 (4.0)	37 (4.3)
Georgia	49 (5.7)	34 (4.9)	24 (3.9)	24 (5.0)!	21 (5.4)!	34 (4.6)	34 (4.6)
Hawaii	45 (1.3)«	41 (2.9)<	28 (2.0)	24 (3.6)	31 (2.7)<	36 (1.0)«	37 (1.1)
Idaho	31 (4.0)<	31 (4.8)	29 (4.4)	18 (4.2)!	27 (5.5)!	30 (4.1)	28 (3.9)
Indiana	42 (6.2)	30 (5.4)	31 (5.4)	29 (6.1)!	25 (5.7)!	34 (5.2)	34 (5.6)
Iowa	37 (5.1)	31 (5.0)	27 (4.8)	16 (4.8)!	24 (5.1)!	32 (4.6)	32 (4.8)
Kentucky	49 (5.4)	35 (5.4)	26 (4.5)	20 (4.1)!	20 (4.3)!	32 (4.7)	34 (4.9)
Louisiana	40 (5.9)	35 (5.9)	28 (4.4)	30 (6.1)!	24 (4.8)!	33 (5.0)	34 (5.0)
Maine	38 (5.2)	30 (5.5)	21 (4.0)	21 (5.0)!	19 (5.9)!	30 (4.6)	29 (4.7)
Maryland	45 (4.9)	29 (4.7)	22 (4.0)	12 (4.3)!	19 (4.0)!	34 (4.2)	31 (3.9)
Massachusetts	48 (5.1)	30 (4.8)	24 (4.4)	13 (3.8)!	11 (3.0)!	35 (4.4)	35 (4.4)
Michigan	47 (6.3)	33 (5.5)	26 (4.5)	19 (5.0)!	26 (5.8)!	36 (5.4)	35 (5.0)
Minnesota	40 (5.0)	38 (5.2)	27 (4.9)	17 (5.8)!	29 (6.0)!	34 (4.5)	37 (5.4)
Mississippi	40 (5.8)	40 (5.4)	28 (4.4)	32 (5.4)	23 (4.8)!	33 (4.7)	35 (5.1)
Missouri	39 (5.8)	31 (5.0)	28 (4.2)	18 (3.8)!	20 (4.7)!	30 (4.7)	32 (4.6)
Nebraska	32 (5.4)	29 (5.7)!	22 (4.7)!	15 (6.0)!	15 (5.0)!	28 (4.8)	27 (5.0)
New Hampshire	37 (5.0)	24 (4.3)	22 (4.2)	13 (4.3)!	25 (5.1)!	28 (4.6)	29 (4.3)
New Jersey	43 (4.0)	26 (4.0)	20 (3.6)	15 (4.8)!	14 (3.4)!	32 (3.4)	29 (3.6)
New Mexico	44 (4.6)	32 (5.0)	22 (3.8)	17 (3.5)	21 (4.0)!	31 (4.0)	30 (4.1)
New York	41 (4.4)	31 (5.0)	20 (3.5)	13 (4.3)!	10 (2.4)!	29 (3.7)	30 (4.0)
North Carolina	43 (5.1)	33 (5.4)	25 (4.4)	30 (6.7)!	28 (5.1)	37 (5.0)	31 (4.7)
North Dakota	28 (4.0)«	28 (5.2)	20 (4.3)!<	10 (3.7)!	28 (6.4)!	26 (4.0)«	27 (4.2)
Ohio	44 (5.4)	31 (5.6)	31 (6.8)!	13 (3.4)!	18 (4.4)!	35 (5.4)	33 (5.2)
Oklahoma	39 (5.2)	33 (5.3)	26 (4.4)	20 (4.1)!	21 (4.9)!	32 (4.8)	31 (4.4)
Pennsylvania	47 (5.6)	32 (4.7)	29 (4.0)	24 (5.0)	25 (5.3)!	37 (4.6)	35 (4.7)
Rhode Island	42 (1.3)	25 (2.7)	24 (2.3)	16 (1.6)	14 (2.3)	30 (0.8)	31 (0.8)
South Carolina	43 (4.5)	34 (4.5)	25 (2.9)	19 (4.9)!	26 (4.6)	33 (4.0)	32 (2.4)
Tennessee	45 (5.6)	29 (4.2)	28 (4.5)	22 (3.6)	28 (4.7)	37 (4.9)	29 (3.8)
Texas	54 (5.0)	38 (4.5)	30 (4.9)	13 (3.2)!	19 (3.7)!	37 (4.2)	34 (4.3)
Utah	37 (4.2)	28 (4.3)	24 (4.4)	21 (4.6)!	26 (5.0)!	32 (3.8)	31 (4.2)
Virginia	48 (5.1)	29 (5.0)	18 (3.3)	17 (4.8)!	32 (5.8)!	33 (4.5)	34 (4.3)
West Virginia	38 (5.9)	40 (5.9)	28 (5.1)	20 (4.0)	26 (5.1)	32 (4.9)	32 (5.1)
Wisconsin	50 (6.0)	38 (5.2)	29 (6.2)!	25 (6.6)!	25 (6.1)!	39 (5.3)	39 (5.0)
Wyoming	30 (3.4)	32 (3.9)	23 (3.6)	25 (4.8)!	23 (3.4)	28 (3.3)	29 (3.2)
TERRITORIES							
Guam	12 (1.4)	11 (1.6)	17 (1.6)	11 (2.6)!	14 (1.2)	14 (0.6)	13 (0.7)
Virgin Islands	33 (2.2)	33 (3.5)	31 (1.4)	27 (2.6)	18 (1.3)«	29 (1.1)	27 (1.1)

TABLE 2.20 | Percentages of Students Within Selected Demographic Subgroups in the Top One-Third of the Schools (continued)

PUBLIC SCHOOLS	Grade 8 - 1990								
	Percentage of Students by Race/Ethnicity					Percentage of Students by Type of Community			
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	33 (5.9)	9 (2.9)!	13 (4.7)!	35(11.7)!	19(14.4)!	85(16.0)!	8 (8.8)!	5 (4.9)!	25 (5.4)!
Northeast	54(12.3)!	22(17.3)!	*** (***)	*** (***)	*** (***)	67(37.4)!	0 (0.0)	*** (***)	63(13.0)!
Southeast	15 (7.0)!	7 (3.4)!	*** (***)	*** (***)	*** (***)	*** (***)	*** (***)	0 (0.0)	15 (6.7)!
Central	41(14.6)!	3 (3.2)!	*** (***)	*** (***)	*** (***)	*** (***)	0 (0.0)	*** (***)	38(15.7)!
West	24(10.7)!	14 (9.4)!	10 (5.9)!	*** (***)	*** (***)	100 (0.0)!	14(16.4)!	0 (0.0)	5 (4.6)!
STATES									
Alabama	42 (5.3)	14 (3.2)!	20 (5.8)!	*** (***)	*** (***)	61(14.5)!	8 (7.7)!	16 (9.7)!	37 (6.8)!
Arizona	48 (3.5)	22 (5.9)!	17 (3.3)	*** (***)	8 (3.9)!	61(11.2)!	13(10.6)!	22(13.5)!	34 (4.9)
Arkansas	41 (4.5)	6 (2.1)!	20 (5.7)!	*** (***)	*** (***)	63(22.3)!	0 (0.0)	23 (7.3)!	39 (5.2)
California	49 (6.0)	17 (3.8)!	15 (2.7)	30 (6.0)!	*** (***)	74(13.8)!	6 (6.3)!	*** (***)	34 (5.8)
Colorado	39 (4.0)	6 (2.5)!	13 (2.8)!	*** (***)	*** (***)	77 (6.1)	0 (0.0)	22 (9.9)!	18 (4.8)!
Connecticut	38 (3.4)	6 (1.2)	8 (2.2)!	*** (***)	*** (***)	73 (7.0)	0 (0.0)	*** (***)	15 (4.5)!
Delaware	28 (0.6)	21 (1.7)	13 (2.9)!	*** (***)	*** (***)	100 (0.0)	*** (***)	7 (0.1)	22 (0.2)
Dist. Columbia	*** (***)	27 (0.7)	29 (3.5)	*** (***)	*** (***)	100 (0.0)	9 (0.1)	*** (***)	54 (0.5)
Florida	40 (4.4)	16 (3.5)!	27 (7.0)!	40 (8.0)!	*** (***)	81(11.4)!	0 (0.0)	0 (0.0)	37 (5.9)
Georgia	45 (5.0)	13 (3.2)!	20 (3.9)	*** (***)	*** (***)	100 (0.0)!	0 (0.0)	12 (8.1)!	29 (5.7)!
Hawaii	55 (2.3)	*** (***)	40 (2.7)	43 (0.8)	*** (***)	100 (0.0)	14 (0.7)	*** (***)	47 (0.4)
Idaho	38 (1.0)	*** (***)	27 (4.8)!	*** (***)	19 (5.9)!	*** (***)	*** (***)	20 (4.9)!	43 (1.3)
Indiana	37 (5.6)	4 (2.1)!	24 (6.9)!	*** (***)	*** (***)	52(13.4)!	0 (0.0)	32(13.3)!	39 (7.1)!
Iowa	30 (5.0)	*** (***)	16 (4.5)!	*** (***)	*** (***)	80 (8.5)!	0 (0.0)	28 (7.8)!	28 (6.5)!
Kentucky	33 (4.7)	23 (6.7)!	14 (4.9)!	*** (***)	*** (***)	81(13.1)!	10 (9.9)!	10 (4.5)!	43 (7.0)
Louisiana	44 (5.5)	18 (3.5)	30 (6.2)!	*** (***)	*** (***)	84(12.5)!	11 (7.4)!	14 (8.7)!	41 (7.2)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	41 (5.0)	13 (3.0)!	23 (4.4)	69 (7.5)!	*** (***)	74(10.1)!	0 (0.0)	0 (0.0)	24 (6.7)!
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	36 (5.0)	9 (2.5)!	19 (5.5)!	*** (***)	*** (***)	78(11.5)!	0 (0.0)	24(11.6)!	26 (5.9)!
Minnesota	33 (4.4)	11 (4.8)!	26 (7.3)!	31 (6.7)!	*** (***)	35 (8.6)!	*** (***)	21 (8.0)!	40 (7.0)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	35 (3.6)	4 (2.2)!	21 (6.0)!	*** (***)	*** (***)	64 (1.3)	*** (***)	38 (9.1)!	21 (3.1)
New Hampshire	31 (1.1)	*** (***)	26 (6.2)!	*** (***)	*** (***)	31 (4.3)	*** (***)	61(12.9)	31 (1.1)
New Jersey	40 (5.1)	8 (2.5)!	9 (1.7)	59 (7.7)	*** (***)	71(12.9)	0 (0.0)	*** (***)	20 (5.7)!
New Mexico	54 (1.8)	*** (***)	24 (1.5)	*** (***)	17 (1.7)	100 (0.0)	35 (1.1)	25 (3.2)	34 (0.7)
New York	43 (4.9)	2 (0.7)!	5 (2.0)!	44(14.5)!	*** (***)	68(14.8)!	0 (0.0)	100 (0.0)!	35 (6.5)
North Carolina	40 (4.9)	22 (3.9)	16 (4.5)!	*** (***)	8 (4.3)!	75(20.2)!	52(29.9)!	21 (9.4)!	32 (5.1)
North Dakota	45 (3.1)	*** (***)	36 (8.1)!	*** (***)	6 (2.5)!	26 (0.9)	*** (***)	43 (6.2)!	49 (3.0)
Ohio	37 (4.6)	7 (2.5)!	16 (5.4)!	*** (***)	*** (***)	91 (7.8)!	7 (7.4)!	27 (9.0)!	26 (5.0)
Oklahoma	38 (4.3)	17 (5.6)!	25 (6.7)!	*** (***)	16 (4.0)!	100 (0.0)!	9 (8.1)!	20 (8.6)!	30 (5.7)!
Pennsylvania	36 (5.1)	11 (6.2)!	14 (5.2)!	*** (***)	*** (***)	91 (9.2)!	0 (0.0)	15(12.4)!	29 (6.6)!
Rhode Island	33 (0.8)	8 (2.2)!	12 (1.8)	*** (***)	*** (***)	88 (0.2)	0 (0.0)	*** (***)	19 (0.2)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	46 (5.4)	21 (5.9)!	19 (4.0)!	*** (***)	*** (***)	93 (7.0)!	10 (6.5)!	46(18.8)!	25 (5.9)!
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	42 (4.5)	11 (2.3)	36 (4.9)	68 (5.7)	*** (***)	72 (8.4)!	0 (0.0)	9 (9.4)!	29 (5.3)
West Virginia	35 (5.2)	25 (7.3)!	28 (5.6)!	*** (***)	*** (***)	*** (***)	38(14.4)!	23 (9.1)!	37 (5.9)
Wisconsin	37 (4.9)	3 (2.6)!	24 (5.2)!	*** (***)	*** (***)	65(22.0)!	0 (0.0)	40(12.6)!	35 (5.8)
Wyoming	24 (0.8)	*** (***)	17 (2.6)	*** (***)	15 (2.9)	*** (***)	*** (***)	37 (3.7)	24 (0.7)
TERRITORIES									
Guam	31 (4.1)	*** (***)	9 (1.6)	15 (0.4)	*** (***)	*** (***)	*** (***)	0 (0.0)	21 (0.2)
Virgin Islands	*** (***)	32 (0.6)	16 (1.9)	*** (***)	*** (***)	*** (***)	*** (***)	0 (0.0)	36 (0.2)

(xxx) Did not participate in the 1990 Trial State Assessment.

TABLE 2.20 | Percentages of Students Within Selected Demographic Subgroups in the Top One-Third of the Schools (continued)

PUBLIC SCHOOLS	Grade 8 - 1990						
	Percentage of Students by Parents' Highest Level of Education					Percentage of Students by Gender	
	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Male	Female
NATION	40 (6.2)	28 (5.7)!	18 (4.6)!	11 (2.6)!	15 (4.0)!	27 (4.9)	27 (4.9)
Northeast	66(11.7)!	48(13.5)!	27 (9.2)!	*** (***)	*** (***)	49(12.0)!	50(12.4)!
Southeast	28(11.3)!	9 (4.6)!	6 (2.9)!	4 (3.2)!	3 (2.1)!	11 (5.3)!	15 (6.9)!
Central	36(12.2)!	40(14.6)!	33(13.5)!	*** (***)	*** (***)	36(12.3)!	34(12.2)!
West	31(12.3)!	21 (9.9)!	6 (3.3)!	5 (2.8)!	12 (6.8)!	21 (9.5)!	17 (7.8)!
STATES							
Alabama	40 (4.7)	36 (4.8)	29 (4.7)	26 (5.6)!	22 (5.2)!	34 (4.4)	32 (4.2)
Arizona	48 (4.0)	37 (3.7)	26 (3.2)	18 (4.6)!	24 (3.9)	34 (3.3)	37 (3.4)
Arkansas	38 (4.2)	39 (4.9)	27 (3.6)	31 (4.8)	20 (3.7)	34 (4.1)	31 (3.6)
California	46 (5.7)	34 (5.4)	26 (4.4)	13 (2.6)!	18 (2.7)	33 (4.2)	32 (4.3)
Colorado	44 (4.3)	29 (4.1)	19 (3.4)	14 (3.2)!	23 (4.0)	32 (3.6)	33 (3.6)
Connecticut	49 (3.5)	24 (3.1)	14 (2.3)	9 (2.8)!	14 (3.3)!	32 (3.0)	31 (2.8)
Delaware	38 (1.0)	25 (2.2)	17 (1.3)	10 (3.7)!	16 (3.2)!	27 (1.1)	25 (1.2)
Dist. Columbia	42 (1.7)	33 (2.4)	18 (1.4)	16 (2.8)	24 (3.1)	28 (0.9)	30 (0.7)
Florida	45 (4.8)	36 (4.2)	27 (3.7)	13 (3.6)!	22 (4.1)	34 (4.0)	33 (4.0)
Georgia	45 (5.2)	35 (4.5)	25 (3.9)	19 (4.3)!	23 (4.5)	33 (4.1)	33 (4.0)
Hawaii	52 (1.4)	52 (1.9)	34 (1.7)	34 (4.1)	41 (2.8)	44 (1.0)	45 (1.1)
Idaho	43 (1.4)	36 (2.2)	29 (2.4)	28 (4.4)	27 (4.6)!	39 (1.4)	34 (1.5)
Indiana	38 (6.0)	36 (6.0)	33 (5.5)	25 (5.9)!	17 (4.9)!	35 (5.6)	33 (5.0)
Iowa	33 (5.6)	25 (5.0)	27 (4.8)	17 (4.8)!	26 (6.0)!	29 (5.0)	29 (4.9)
Kentucky	48 (5.6)	35 (5.2)	25 (4.3)	20 (4.1)	23 (5.3)!	31 (4.5)	32 (4.7)
Louisiana	42 (4.6)	38 (5.2)	29 (4.1)	23 (4.0)	29 (5.1)	32 (4.0)	34 (4.4)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	49 (4.6)	29 (4.7)	15 (3.1)	15 (3.5)!	25 (4.9)	33 (4.1)	32 (4.0)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	43 (5.1)	28 (4.7)	22 (4.3)	18 (4.5)!	23 (5.0)!	32 (4.4)	32 (4.5)
Minnesota	40 (4.6)	32 (5.2)	25 (4.1)	27 (5.3)!	24 (4.6)!	33 (4.3)	32 (4.4)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	39 (3.4)	34 (3.3)	29 (4.8)	17 (4.1)!	19 (3.3)	33 (3.6)	34 (3.5)
New Hampshire	40 (1.4)	29 (2.4)	21 (1.5)	7 (2.4)!	26 (4.8)	30 (1.4)	32 (1.3)
New Jersey	47 (5.0)	26 (4.3)	19 (3.4)	7 (2.4)!	17 (3.2)	32 (4.0)	31 (4.0)
New Mexico	49 (1.6)	38 (2.1)	28 (1.9)	21 (3.1)	27 (3.1)	39 (1.2)	33 (1.3)
New York	38 (4.1)	31 (5.1)	26 (3.6)	14 (3.8)!	14 (2.7)	29 (3.8)	30 (3.5)
North Carolina	42 (5.1)	30 (4.3)	29 (4.3)	22 (4.1)	28 (5.7)!	33 (4.4)	32 (4.2)
North Dakota	48 (2.7)	41 (4.1)	37 (4.5)	29 (7.0)!	30 (5.6)!	44 (3.4)	41 (3.5)
Ohio	45 (5.3)	32 (4.3)	27 (4.4)	17 (4.4)!	14 (3.8)!	33 (4.3)	33 (4.2)
Oklahoma	45 (4.9)	29 (4.3)	26 (3.7)	17 (3.6)!	23 (6.1)!	33 (4.0)	34 (4.2)
Pennsylvania	48 (5.7)	31 (5.4)	21 (4.2)	16 (4.6)!	20 (5.2)!	33 (4.8)	32 (4.9)
Rhode Island	45 (1.4)	34 (2.3)	18 (1.8)	12 (2.1)	13 (1.9)	30 (0.9)	30 (1.0)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	48 (5.4)	38 (5.4)	25 (4.4)	18 (3.9)!	22 (4.1)	35 (4.7)	33 (4.5)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	53 (4.3)	32 (4.3)	22 (3.3)	16 (3.2)	23 (4.5)!	36 (3.6)	36 (4.0)
West Virginia	47 (6.2)	40 (6.2)	29 (4.8)	21 (4.4)	29 (5.7)!	34 (5.0)	36 (5.3)
Wisconsin	40 (5.6)	34 (4.9)	31 (4.6)	20 (3.7)	27 (6.0)!	34 (4.8)	33 (4.5)
Wyoming	26 (1.2)	22 (1.7)	21 (2.1)	15 (3.1)!	16 (2.9)!	23 (0.9)	22 (1.1)
TERRITORIES							
Guam	15 (2.6)	17 (1.7)	15 (0.8)	12 (2.3)	18 (1.7)	15 (1.2)	15 (1.5)
Virgin Islands	29 (2.5)	31 (2.8)	36 (2.4)	21 (2.8)	26 (1.9)	30 (1.1)	28 (1.0)

(xxx) Did not participate in the 1990 Trial State Assessment.

TABLE 2.21 | Percentages of Students Within Selected Demographic Subgroups in the Bottom One-Third of the Schools

PUBLIC SCHOOLS	Grade 4 - 1992								
	Percentage of Students by Race/Ethnicity					Percentage of Students by Type of Community			
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	11 (1.2)	62 (5.2)	48 (4.0)	12 (3.6)!	26 (6.0)!	3 (2.9)!	78 (8.5)	22 (8.6)!	17 (2.2)
Northeast	9 (2.3)!	67 (9.1)!	61(11.1)!	*** (***)	*** (***)	0 (0.0)	46(14.2)!	*** (***)	27 (6.1)!
Southeast	26 (3.7)	60 (8.9)!	51 (5.3)	*** (***)	*** (***)	0 (0.0)	89 (9.5)!	60(12.0)!	24 (5.3)!
Central	3 (1.4)!	61(13.7)!	34 (9.0)!	*** (***)	*** (***)	19(21.2)!	94 (8.0)!	0 (0.0)	3 (1.7)!
West	8 (1.5)	60 (9.3)!	47 (5.7)	10 (4.9)!	*** (***)	0 (0.0)	100 (0.0)!	6 (6.1)!	19 (4.0)!
STATES									
Alabama	15 (4.0)!	67 (5.4)	30 (7.4)!	*** (***)	*** (***)	0 (0.0)	73(12.4)!	15(10.9)!	31 (6.1)!
Arizona	18 (3.3)	49 (8.9)!	55 (5.1)	*** (***)	71 (6.6)!	0 (0.0)	36(15.2)!	54(19.0)!	42 (6.0)
Arkansas	20 (3.4)	69 (5.5)	41 (6.4)	*** (***)	22 (6.0)!	*** (***)	93 (6.8)!	37 (8.8)!	25 (5.3)!
California	12 (3.0)!	55 (6.6)	53 (5.2)	24 (4.5)	28 (8.6)!	0 (0.0)	77 (8.9)	*** (***)	21 (5.5)!
Colorado	22 (2.8)	57 (8.4)!	53 (5.1)	29 (7.9)!	45 (6.8)!	0 (0.0)	75(10.5)!	41(12.5)!	30 (5.0)
Connecticut	17 (3.0)	77 (5.4)	70 (5.0)	*** (***)	*** (***)	8 (7.9)!	97 (3.4)!	*** (***)	15 (4.3)!
Delaware	38 (1.1)	46 (2.1)	45 (2.5)	*** (***)	*** (***)	50 (0.8)	100 (0.0)	43 (0.4)	26 (0.3)
Dist. Columbia	5 (2.2)!	40 (0.5)	43 (2.0)	*** (***)	*** (***)	0 (0.0)	47 (0.4)	*** (***)	27 (0.6)
Florida	18 (3.5)	64 (5.9)	46 (5.8)	*** (***)	*** (***)	0 (0.0)	82 (7.9)	75(26.1)!	24 (5.4)!
Georgia	18 (3.0)	64 (4.8)	45 (5.7)	*** (***)	*** (***)	0 (0.0)	87 (9.0)!	20(11.4)!	33 (5.5)!
Hawaii	27 (5.4)!	27 (6.0)!	43 (6.2)	36 (4.9)	*** (***)	0 (0.0)	89(11.2)!	61(26.2)!	34 (6.3)!
Idaho	31 (5.0)	*** (***)	51 (6.8)	*** (***)	45 (8.0)!	0 (0.0)	*** (***)	38 (8.8)!	32 (7.1)!
Indiana	27 (4.5)	77 (7.0)!	38 (7.3)!	*** (***)	*** (***)	0 (0.0)	100 (0.0)!	30(10.6)!	29 (5.6)!
Iowa	33 (4.1)	59(10.4)!	36 (6.4)	*** (***)	*** (***)	0 (0.0)	100 (0.0)!	32 (6.9)!	30 (7.3)!
Kentucky	31 (3.4)	40 (9.2)!	33 (7.1)!	*** (***)	*** (***)	0 (0.0)	60(15.4)!	30 (8.1)!	33 (5.4)
Louisiana	14 (3.2)!	57 (5.5)	29 (7.6)!	*** (***)	*** (***)	0 (0.0)	65(10.0)	25(15.0)!	28 (5.7)!
Maine	34 (5.6)	*** (***)	39 (8.4)!	*** (***)	*** (***)	*** (***)	*** (***)	44(14.7)!	32 (6.9)!
Maryland	17 (3.2)	70 (4.7)	43 (6.7)!	22 (5.6)!	*** (***)	7 (7.4)!	77(13.1)!	0 (0.0)	39 (5.4)
Massachusetts	19 (3.4)	74 (6.2)	55 (6.1)	49 (9.6)!	*** (***)	0 (0.0)	91 (6.1)	*** (***)	16 (4.7)!
Michigan	22 (4.5)!	88 (3.9)	47 (6.9)	*** (***)	33 (6.6)	0 (0.0)	94 (5.8)!	29(18.7)!	20 (5.2)!
Minnesota	35 (4.7)	75 (7.2)!	56 (6.3)	*** (***)	*** (***)	0 (0.0)	*** (***)	43(10.4)!	40 (8.3)!
Mississippi	10 (2.4)!	55 (4.8)	55 (7.4)!	*** (***)	*** (***)	*** (***)	93 (6.3)!	12 (8.3)!	35 (3.9)
Missouri	23 (4.1)	76 (3.8)	35 (6.6)!	*** (***)	*** (***)	11(11.3)!	94 (6.4)!	24 (8.2)!	29 (6.6)!
Nebraska	27 (4.3)	82 (4.7)	45 (9.1)!	*** (***)	*** (***)	0 (0.0)	85(15.3)!	27 (9.7)!	38 (6.8)!
New Hampshire	32 (4.6)	*** (***)	34 (6.9)!	*** (***)	*** (***)	14(12.6)!	*** (***)	37(16.9)!	34 (5.5)
New Jersey	14 (2.8)!	80 (6.2)	65 (4.8)	21 (7.0)!	*** (***)	0 (0.0)	87 (8.8)!	*** (***)	28 (5.3)!
New Mexico	20 (4.8)!	33 (8.8)!	50 (6.1)	*** (***)	27(12.7)!	0 (0.0)	57(17.7)!	44(40.7)!	37 (6.3)
New York	16 (4.1)!	83 (4.9)	71 (5.7)	18 (7.0)!	*** (***)	0 (0.0)	87 (8.7)!	*** (***)	28 (7.6)!
North Carolina	24 (4.1)	49 (6.1)	46 (8.7)!	*** (***)	63(16.2)!	0 (0.0)	83(18.5)!	37(11.3)!	35 (5.9)
North Dakota	32 (3.9)	*** (***)	37 (9.0)!	*** (***)	68 (8.6)!	5 (5.4)!	*** (***)	39 (5.8)!	36 (6.1)
Ohio	24 (3.5)	66 (7.8)	39 (7.2)!	*** (***)	29 (7.8)!	0 (0.0)	85 (8.8)	19(10.2)!	20 (5.2)!
Oklahoma	23 (3.7)	64 (7.4)	35 (7.0)!	*** (***)	40 (5.3)	0 (0.0)	52(15.1)!	20 (8.0)!	26 (5.7)!
Pennsylvania	20 (4.0)	80 (4.4)	56 (6.1)	*** (***)	*** (***)	8 (9.2)!	86 (9.3)	0 (0.0)	27 (5.8)!
Rhode Island	21 (3.7)	71 (8.6)	67 (5.3)	86 (4.0)	*** (***)	0 (0.0)	90 (7.1)!	*** (***)	17 (4.8)!
South Carolina	15 (3.4)!	53 (5.2)	33 (6.6)!	*** (***)	*** (***)	0 (0.0)	91(11.1)!	29(12.4)!	30 (4.5)
Tennessee	22 (3.9)	64 (6.6)	43 (9.5)!	*** (***)	*** (***)	0 (0.0)	95 (5.5)!	41(16.0)!	22 (5.4)!
Texas	19 (4.1)!	56 (7.0)!	42 (5.8)	27 (6.7)!	*** (***)	0 (0.0)	58(11.8)!	15(12.3)!	39 (7.1)!
Utah	32 (4.5)	*** (***)	56 (6.7)	*** (***)	*** (***)	6 (5.5)!	100 (0.0)!	38(19.6)!	35 (6.8)!
Virginia	26 (3.5)	60 (5.2)	34 (7.1)!	19 (5.9)!	*** (***)	0 (0.0)	83 (8.8)!	54(10.7)!	32 (6.5)!
West Virginia	33 (4.1)	41(12.4)!	25 (7.1)!	*** (***)	*** (***)	*** (***)	53(17.1)!	30(12.5)!	34 (4.7)
Wisconsin	27 (4.3)	69 (8.0)!	41 (7.7)!	*** (***)	70(17.3)!	0 (0.0)	100 (0.0)!	27 (9.5)!	28 (6.2)!
Wyoming	34 (5.0)	*** (***)	44 (6.6)	*** (***)	63(10.5)!	21(21.6)!	100 (0.0)!	22 (9.0)!	36 (6.7)!
TERRITORY									
Guam	24 (2.7)	33 (5.6)!	45 (2.1)	37 (0.8)	*** (***)	*** (***)	*** (***)	80 (0.3)	19 (0.3)

The standard errors of the estimated percentages appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. ***The number of schools or students was considered insufficient for this analysis. Underlying subgroup population proportions provided in previous tables should be considered in interpreting these results. ! Interpret with caution - the nature of the sample does not allow accurate determination of the variability of this estimated statistic.

TABLE 2.21 | Percentages of Students Within Selected Demographic Subgroups in the Bottom One-Third of the Schools (continued)

	Grade 4 - 1992						
	Percentage of Students by Parents' Highest Level of Education					Percentage of Students by Gender	
PUBLIC SCHOOLS	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Male	Female
NATION	17 (1.6)	24 (2.5)	26 (2.4)	37 (3.7)	26 (2.1)	23 (1.7)	23 (1.8)
Northeast	18 (3.5)!	31 (9.4)!	26 (5.5)!	*** (***)	28 (4.8)!	24 (3.9)!	24 (4.4)!
Southeast	29 (4.8)	38 (4.3)	44 (6.4)	52 (6.5)	42 (5.1)	39 (4.4)	37 (4.6)
Central	10 (2.7)!	12 (4.4)!	11 (3.9)!	*** (***)	12 (3.8)!	11 (3.0)!	12 (3.7)!
West	15 (2.4)	20 (3.8)!	18 (3.8)!	34 (6.5)!	25 (3.5)	21 (2.9)	20 (2.6)
STATES							
Alabama	33 (4.6)	27 (4.7)	32 (5.4)	31 (6.4)!	34 (5.0)	32 (4.7)	33 (4.4)
Arizona	30 (4.0)	24 (4.0)	37 (5.0)	54 (6.0)	38 (3.9)	36 (4.0)	34 (3.7)
Arkansas	31 (4.1)	27 (4.3)	32 (4.0)	33 (5.0)	33 (4.4)	31 (3.7)	33 (3.9)
California	20 (3.4)	28 (4.7)	34 (5.9)	57 (6.6)	37 (4.6)	31 (4.2)	31 (3.9)
Colorado	22 (2.8)	29 (5.2)	44 (4.5)	55 (5.5)	37 (4.0)	32 (3.7)	31 (3.2)
Connecticut	19 (2.8)	28 (4.4)	39 (4.7)	54 (6.4)	39 (4.0)	31 (3.3)	30 (3.4)
Delaware	33 (1.3)	42 (3.9)	42 (3.0)	59 (5.5)	45 (1.3)	42 (1.1)	38 (1.0)
Dist. Columbia	36 (1.2)	31 (3.4)	43 (2.5)	49 (5.2)	38 (1.3)	39 (1.0)	37 (0.8)
Florida	29 (4.2)	29 (5.1)	42 (5.1)	43 (6.7)	35 (4.1)	33 (4.2)	34 (4.0)
Georgia	33 (3.4)	33 (4.3)	42 (4.7)	36 (5.7)	36 (4.2)	36 (3.5)	36 (3.6)
Hawaii	31 (4.4)	28 (5.5)!	40 (4.9)	57 (8.5)!	35 (5.2)	34 (4.7)	34 (4.6)
Idaho	28 (4.9)	30 (6.4)!	44 (6.4)	56 (8.3)!	35 (5.3)	34 (5.3)	34 (5.3)
Indiana	29 (4.3)	27 (5.6)!	35 (5.6)	43 (7.2)	35 (5.2)	33 (4.8)	33 (4.6)
Iowa	28 (4.1)	32 (5.0)	39 (4.7)	56 (7.0)	36 (4.6)	33 (4.3)	34 (4.2)
Kentucky	24 (4.0)	35 (5.2)	32 (3.7)	43 (5.2)	34 (3.7)	31 (3.6)	33 (3.7)
Louisiana	29 (3.9)	25 (4.1)	42 (5.7)	38 (6.1)	33 (4.9)	32 (4.3)	34 (4.2)
Maine	26 (5.3)	30 (6.2)	42 (6.4)	49 (9.5)!	37 (6.3)	33 (5.8)	35 (5.7)
Maryland	31 (3.5)	29 (4.8)!	42 (5.3)	44 (7.7)!	38 (4.2)	33 (3.5)	38 (3.9)
Massachusetts	18 (2.8)	19 (4.7)!	33 (4.8)	60 (7.2)!	39 (5.3)	27 (3.7)	28 (4.2)
Michigan	27 (3.9)	30 (5.6)	41 (6.4)	40 (8.1)!	38 (5.2)	33 (4.5)	34 (4.6)
Minnesota	32 (4.5)	38 (5.8)	43 (5.6)	*** (***)	41 (5.1)	38 (4.8)	38 (4.7)
Mississippi	33 (4.0)	35 (5.1)	38 (4.7)	42 (5.4)	38 (3.6)	36 (3.3)	36 (3.6)
Missouri	25 (3.2)	32 (4.5)	36 (5.1)	45 (8.6)!	35 (4.9)	32 (4.0)	31 (4.0)
Nebraska	25 (4.1)	28 (5.4)!	31 (6.0)!	*** (***)	42 (5.0)	32 (4.5)	33 (4.6)
New Hampshire	26 (4.3)	34 (6.0)	38 (5.6)	45 (8.1)!	37 (5.1)	32 (4.6)	33 (4.8)
New Jersey	20 (2.7)	30 (4.9)	39 (4.5)	57 (7.6)!	42 (4.1)	30 (3.2)	32 (3.4)
New Mexico	24 (4.6)	24 (4.8)	42 (6.6)!	53 (7.6)!	40 (5.9)	37 (5.5)	33 (5.3)
New York	27 (4.4)	28 (4.8)	38 (7.4)!	51 (7.5)!	47 (5.6)	36 (4.8)	38 (4.6)
North Carolina	29 (4.5)	28 (5.4)!	39 (5.3)	36 (6.4)!	38 (5.0)	35 (4.7)	33 (4.6)
North Dakota	30 (3.9)	32 (6.5)!	33 (5.3)	*** (***)	37 (4.6)	33 (4.0)	34 (4.1)
Ohio	21 (2.8)	25 (3.9)	35 (5.0)	47 (7.5)!	34 (4.1)	28 (3.5)	31 (3.8)
Oklahoma	24 (3.7)	24 (4.5)	35 (4.4)	37 (6.7)!	33 (4.4)	28 (3.6)	31 (4.1)
Pennsylvania	26 (3.7)	28 (5.7)!	31 (4.8)	38 (5.8)	35 (4.7)	30 (4.3)	31 (3.6)
Rhode Island	19 (3.0)	27 (4.6)	35 (5.6)	45 (7.2)	42 (5.1)	33 (4.1)	31 (4.4)
South Carolina	26 (3.4)	25 (3.5)	35 (4.3)	31 (6.1)!	34 (4.7)	31 (4.0)	30 (3.7)
Tennessee	30 (4.6)	35 (5.6)	37 (5.6)	34 (6.0)	33 (4.4)	34 (4.4)	32 (4.5)
Texas	27 (3.9)	21 (4.6)!	37 (5.5)	45 (5.8)	36 (4.3)	33 (4.0)	32 (3.8)
Utah	27 (4.2)	35 (5.8)	45 (7.0)	65 (8.8)!	38 (5.3)	37 (5.0)	32 (4.7)
Virginia	27 (3.4)	32 (4.5)	49 (5.2)	51 (5.9)	35 (4.0)	35 (3.9)	33 (3.5)
West Virginia	24 (3.7)	26 (4.2)	40 (4.9)	44 (5.3)	35 (4.7)	33 (4.3)	33 (4.0)
Wisconsin	30 (4.6)	26 (5.2)	30 (4.9)	42 (7.0)	36 (4.8)	32 (4.6)	32 (4.4)
Wyoming	32 (5.2)	35 (5.9)	44 (5.4)	50 (6.6)	38 (5.5)	35 (4.8)	38 (5.3)
TERRITORY							
Guam	38 (1.4)	30 (4.1)	41 (2.9)	43 (5.2)	36 (1.0)	36 (1.2)	39 (1.3)

TABLE 2.21 | Percentages of Students Within Selected Demographic Subgroups in the Bottom One-Third of the Schools (continued)

PUBLIC SCHOOLS	Grade 8 - 1992								
	Percentage of Students by Race/Ethnicity					Percentage of Students by Type of Community			
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	11 (2.0)	68 (3.8)	49 (5.1)	20 (7.6)!	16 (4.5)!	0 (0.0)	83 (6.4)	17(10.8)!	21 (2.7)
Northeast	12 (3.2)!	74 (4.8)	65 (8.4)!	*** (***)	*** (***)	0 (0.0)	100 (0.0)!	*** (***)	25 (5.4)!
Southeast	24 (7.0)!	67 (6.8)	56 (9.9)!	*** (***)	*** (***)	0 (0.0)	74(13.9)!	37(27.3)!	35 (7.4)!
Central	4 (1.0)!	72 (8.3)!	25(13.3)!	*** (***)	*** (***)	0 (0.0)	84(17.8)!	0 (0.0)	9 (2.8)!
West	7 (3.1)!	55 (9.4)!	47 (7.1)!	19(12.6)!	*** (***)	0 (0.0)	72(11.6)!	9 (9.1)!	17 (4.0)!
STATES									
Alabama	20 (4.3)!	65 (6.1)	58 (8.7)!	*** (***)	*** (***)	0 (0.0)	71(14.3)!	6 (5.9)! «	34 (5.7)
Arizona	18 (3.0)	42 (6.9)!	55 (6.0)	*** (***)	52(14.9)!	0 (0.0)	68(14.3)!	34(24.0)!	32 (5.7)
Arkansas	22 (3.5)	67 (6.0)	56 (6.0)	*** (***)	*** (***)	*** (***)	80(20.2)!	11 (8.5)! <	36 (4.7)
California	14 (3.6)!	54(13.0)!	56 (5.1)	25 (6.0)!	*** (***)	0 (0.0)	79 (9.8)!	*** (***)	18 (4.6)!
Colorado	27 (4.0)	73 (7.8)!	56 (5.3)	*** (***)	*** (***)	5 (5.4)!	83(10.6)!	13 (9.9)!	39 (5.8)
Connecticut	23 (3.3)	79 (3.6)	72 (4.7)	31 (9.8)!	*** (***)	24(13.8)!	92 (6.6)	*** (***)	25 (4.9)!
Delaware	40 (0.8)	44 (2.0)	38 (4.5) <	*** (***)	*** (***)	*** (***)	*** (***)	17 (0.6) «	46 (0.3) »
Dist. Columbia	*** (***)	40 (0.6)	32 (3.5) <	*** (***)	*** (***)	0 (0.0)	47 (0.6) «	*** (***)	0 (0.0)
Florida	19 (3.1)	56 (6.3)	51 (7.3)!	*** (***)	*** (***)	0 (0.0)	54(14.5)!	60(20.8)!	30 (5.6)!
Georgia	22 (3.8)	53 (4.9)	43 (6.9)	*** (***)	*** (***)	18(14.2)!	52(14.8)!	86(14.7)!	30 (4.9)
Hawaii	22 (2.2)	*** (***)	35 (2.8)	33 (0.8)	*** (***)	0 (0.0)	100 (0.0)	*** (***)	20 (0.3) «
Idaho	32 (3.4)	*** (***)	54 (5.9) >	*** (***)	43 (9.6)!	0 (0.0)	50(24.0)!	26 (9.5)! <	36 (4.0) >
Indiana	27 (3.8)	77 (6.1)	51 (7.3)!	*** (***)	*** (***)	0 (0.0)	100 (0.0)!	30(15.1)!	23 (5.2)!
Iowa	32 (4.5)	*** (***)	48 (7.6)	*** (***)	*** (***)	0 (0.0)	70(30.1)	19 (6.8)!	38 (7.7)!
Kentucky	34 (4.7)	51 (7.5)!	53 (7.1)	*** (***)	*** (***)	0 (0.0)	75(13.0)!	16(10.9)!	35 (6.0)
Louisiana	15 (3.1)!	54 (5.9)	48 (9.7)!	*** (***)	*** (***)	*** (***)	89 (7.8) >	0 (0.0)	24 (5.2)!
Maine	37 (4.7)	*** (***)	*** (***)	*** (***)	47 (9.1)!	*** (***)	*** (***)	23 (7.4)!	42 (6.1)
Maryland	17 (3.7)!	70 (4.2)	35 (4.6)	12 (4.0)!	*** (***)	7 (6.2)!	77(16.1)!	*** (***)	28 (6.4)!
Massachusetts	26 (3.4)	77 (5.8)!	76 (6.7)!	*** (***)	*** (***)	0 (0.0)	93 (6.7)	*** (***)	16 (5.0)!
Michigan	18 (3.8)!	88 (3.7)	53 (8.2)!	*** (***)	*** (***)	19(14.6)!	95 (5.1)	24(13.7)!	20 (4.3)!
Minnesota	32 (5.5)	*** (***)	49 (8.1)!	*** (***)	*** (***)	0 (0.0)	*** (***)	33(12.0)! <	33 (7.6)! >
Mississippi	12 (3.0)!	55 (3.5)	56 (6.2)	*** (***)	*** (***)	*** (***)	73(16.2)!	26(13.5)!	34 (4.3)
Missouri	29 (4.9)	65 (7.7)!	49 (6.8)	*** (***)	*** (***)	15(13.0)!	73 (9.2)!	48(13.5)!	29 (6.1)!
Nebraska	35 (4.6)	81 (6.7)!	59 (7.4)!	*** (***)	*** (***)	*** (***)	100 (0.0)	25 (8.9)! <	44 (6.7) <
New Hampshire	35 (4.0)	*** (***)	41 (7.4)!	*** (***)	*** (***)	0 (0.0)	*** (***)	0 (0.0)	42 (4.7) >
New Jersey	15 (4.6)!	76 (6.6)	70 (5.8)	17 (5.3)!	*** (***)	0 (0.0)	95 (4.6)	*** (***)	16 (4.5)!
New Mexico	18 (2.8)	*** (***)	40 (4.2)	*** (***)	16 (6.4)! «	0 (0.0)	35(24.0)!	23(25.8)!	24 (3.9)
New York	20 (5.0)!	82 (7.8)	71 (7.2)!	39 (9.8)!	*** (***)	0 (0.0)	94 (5.4)!	16(12.7)!	35 (7.5)!
North Carolina	25 (4.7)	52 (6.5)	34 (7.3)	*** (***)	*** (***)	0 (0.0)	75(17.4)!	46(15.5)!	34 (6.3)!
North Dakota	36 (4.3) >	*** (***)	*** (***)	*** (***)	73 (9.6)!	0 (0.0)	*** (***)	30 (7.0)! <	52 (5.8) »
Ohio	22 (4.1)	81 (4.3)	45 (8.0)!	*** (***)	*** (***)	0 (0.0)	81 (9.1)!	0 (0.0)	29 (6.6)!
Oklahoma	31 (4.9)	65 (8.4)!	43 (6.7)	*** (***)	40 (8.8)!	*** (***)	0 (0.0)	49(15.2)!	31 (5.4)!
Pennsylvania	26 (4.1)	77 (8.1)	59 (8.7)!	*** (***)	*** (***)	0 (0.0)	100 (0.0)!	30(15.0)!	17 (4.3)! <
Rhode Island	25 (0.4) «	64 (5.0) <	65 (2.4) <	43 (6.3)!	*** (***)	0 (0.0)	78 (0.3)	*** (***)	25 (0.2) «
South Carolina	20 (3.3)	53 (5.0)	47 (6.7)	*** (***)	*** (***)	0 (0.0)	85(16.1)!	0 (0.0)	34 (4.1)
Tennessee	24 (4.2)	64 (8.1)	48 (7.5)	*** (***)	*** (***)	0 (0.0)	78(22.8)!	21(22.3)!	31 (5.4)
Texas	15 (3.3)!	47 (9.6)!	56 (6.1)	16 (5.8)!	*** (***)	0 (0.0)	69(13.1)!	22(24.2)!	30 (5.9)!
Utah	34 (4.3)	*** (***)	45 (6.8)!	*** (***)	*** (***)	8 (8.0)!	65(19.6)!	44(17.7)!	36 (5.3)
Virginia	27 (3.8)	59 (6.3)	34 (7.4)!	15 (5.6)!	*** (***)	0 (0.0)	75(13.2)!	60(18.9)!	31 (5.3)
West Virginia	32 (4.9)	43(11.0)!	49 (8.5)!	*** (***)	*** (***)	*** (***)	50(14.1)!	41(15.0)!	31 (5.6)
Wisconsin	26 (4.2)	71(11.6)!	60 (8.5)!	*** (***)	64(15.9)!	11(15.0)!	100 (0.0)!	14 (8.3)!	35 (6.4)
Wyoming	27 (3.6)	*** (***)	40 (4.6)	*** (***)	65(11.3)!	*** (***)	61(12.4)!	17 (8.3)! <	20 (4.5)! <
TERRITORIES									
Guam	34 (5.9)!	*** (***)	53 (3.1)	45 (0.8)	*** (***)	*** (***)	*** (***)	100 (0.0)	33 (0.2) «
Virgin Islands	*** (***)	48 (0.7) >	69 (2.2) >	*** (***)	*** (***)	*** (***)	*** (***)	100 (0.0)	66 (0.3) »

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

TABLE 2.21 | Percentages of Students Within Selected Demographic Subgroups in the Bottom One-Third of the Schools (continued)

PUBLIC SCHOOLS	Grade 8 - 1992						
	Percentage of Students by Parents' Highest Level of Education					Percentage of Students by Gender	
	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Male	Female
NATION	16 (1.6)	22 (2.0)	30 (2.8)	39 (5.3)	39 (3.1)	25 (2.0)	24 (1.9)
Northeast	20 (3.5)	29 (4.5)	27 (5.5)	53 (9.0)!	48 (5.6)	30 (4.0)	28 (4.1)
Southeast	28 (4.6)	34 (5.5)	48 (7.0)	35(12.6)!	45 (6.0)!	38 (6.0)	36 (5.3)
Central	9 (2.3)!	14 (3.0)!	17 (4.2)!	*** (***)	23 (5.2)!	15 (2.7)	12 (2.8)!
West	10 (2.7)!	15 (3.4)!	26 (5.8)!	40 (6.2)!	37 (6.3)	19 (3.9)!	20 (3.6)
STATES							
Alabama	31 (5.1)	34 (5.1)	39 (5.1)	39 (6.4)!	44 (5.9)	35 (4.9)	37 (4.6)
Arizona	17 (3.0)	29 (4.3)	41 (5.1)	58 (5.4)	43 (5.5)	32 (4.0)	31 (3.6)
Arkansas	33 (4.7)	28 (4.3)	36 (4.4)	34 (5.2)	36 (5.8)	35 (4.1)	32 (4.3)
California	19 (3.4)	26 (4.2)	39 (5.6)	64 (5.8)	47 (5.8)	34 (4.1)	32 (4.1)
Colorado	25 (3.5)	32 (4.7)	46 (5.1)	50 (6.4)	52 (6.2)	35 (4.1)	34 (4.1)
Connecticut	22 (3.0)	38 (4.4)	48 (3.9)	66 (5.3)	57 (4.7)	33 (3.1)	39 (3.4)
Delaware	37 (1.6)	43 (2.6)	42 (1.6)«	45 (4.2)	45 (5.7)	43 (1.2)	38 (1.2)
Dist. Columbia	27 (1.2)	39 (2.3)	46 (1.6)	44 (3.9)	42 (2.4)	39 (1.3)	38 (1.3)
Florida	28 (3.6)	33 (4.6)	39 (4.6)	36 (4.7)	44 (5.3)	35 (3.7)	33 (4.2)
Georgia	23 (3.3)	33 (4.7)	42 (5.0)	42 (6.0)	46 (6.6)	33 (4.0)	35 (4.0)
Hawaii	23 (1.3)	29 (2.1)	38 (1.9)	38 (4.4)	37 (2.5)	31 (1.1)	31 (1.1)
Idaho	30 (3.2)	31 (3.9)	37 (4.7)	53 (5.2)>	40 (6.2)	34 (3.6)	34 (3.6)
Indiana	25 (3.6)	31 (4.1)	36 (4.2)	43 (5.6)	45 (5.8)	32 (3.8)	32 (3.8)
Iowa	28 (4.3)	33 (4.7)	38 (5.4)	52 (7.6)	43 (6.2)	34 (4.7)	32 (4.6)
Kentucky	23 (3.9)	33 (4.6)	41 (5.2)	46 (5.8)	52 (5.6)	36 (4.6)	36 (4.8)
Louisiana	27 (4.5)	26 (4.3)	37 (4.4)	33 (5.2)	49 (6.4)	33 (4.3)	31 (4.2)
Maine	29 (4.0)	36 (5.1)	46 (5.8)	50 (6.7)	46 (7.5)	36 (4.7)	38 (4.8)
Maryland	25 (3.7)	35 (4.1)	44 (4.2)	46 (7.4)!	35 (5.4)	33 (3.4)	34 (3.6)
Massachusetts	19 (2.6)	34 (4.0)	41 (4.7)	67 (5.4)	63 (5.3)	33 (3.6)	32 (3.1)
Michigan	23 (3.4)	31 (4.4)	40 (4.0)	48 (6.1)	44 (4.7)	32 (3.6)	33 (3.5)
Minnesota	30 (5.7)	29 (5.2)	40 (6.5)	36 (9.0)!	44 (7.2)	34 (5.6)	32 (5.7)
Mississippi	32 (3.4)	26 (3.4)	37 (3.7)	33 (4.0)	47 (4.8)	34 (3.2)	33 (3.0)
Missouri	26 (4.6)	33 (5.3)	39 (5.4)	48 (6.8)	44 (6.4)	34 (5.0)	34 (4.9)
Nebraska	33 (4.7)	40 (5.2)	42 (4.9)	56 (9.4)	53 (7.3)	38 (4.9)	40 (4.8)
New Hampshire	26 (3.6)	35 (4.3)	47 (5.0)	48 (6.1)	42 (5.6)	35 (4.3)	35 (4.1)
New Jersey	21 (3.6)	34 (5.0)	41 (5.4)	65 (5.8)	59 (6.2)	29 (4.1)	38 (4.2)
New Mexico	20 (3.0)	27 (4.1)	33 (3.7)	40 (5.5)	38 (4.4)	29 (3.3)	29 (3.5)
New York	28 (4.4)	34 (5.4)	45 (5.8)	64 (7.4)!	70 (5.7)	39 (5.0)	40 (4.9)
North Carolina	27 (4.4)	30 (5.0)	41 (5.7)	38 (5.9)	37 (6.3)!	31 (4.6)	36 (5.3)
North Dakota	35 (4.1)	37 (5.2)	43 (5.3)	58 (8.1)!	28 (5.4)	37 (4.2)	37 (4.6)
Ohio	23 (3.9)	30 (4.6)	34 (5.2)	55 (6.3)	45 (7.0)	32 (4.4)	30 (4.5)
Oklahoma	29 (4.9)	33 (5.5)	42 (5.5)	45 (7.1)	45 (6.9)	34 (5.0)	37 (5.1)
Pennsylvania	24 (3.8)	35 (4.5)	35 (4.4)	51 (7.1)!	48 (6.1)	32 (4.0)	34 (4.3)
Rhode Island	20 (1.2)<	28 (2.7)<	34 (2.5)<	60 (2.6)	64 (4.0)	32 (0.8)«	31 (0.8)
South Carolina	24 (3.2)	31 (4.1)	40 (4.9)	40 (5.0)	42 (4.2)	32 (3.8)	34 (3.8)
Tennessee	24 (4.3)	33 (4.9)	37 (5.1)	46 (6.7)	39 (5.6)	31 (4.6)	35 (4.8)
Texas	20 (3.5)	27 (4.6)	35 (4.8)	53 (5.9)	55 (5.2)	33 (3.9)	34 (4.3)
Utah	29 (4.1)	40 (4.9)	43 (5.6)	50 (7.0)	42 (6.0)	34 (4.3)	37 (4.5)
Virginia	21 (3.3)	35 (4.7)	46 (5.5)	49 (6.8)	44 (6.0)	34 (4.3)	34 (4.3)
West Virginia	28 (5.2)	27 (4.7)	35 (5.3)	47 (6.9)	36 (5.7)	33 (5.1)	34 (5.0)
Wisconsin	22 (4.0)	29 (4.6)	39 (5.3)	52 (7.4)	45 (6.8)!	32 (4.7)	31 (4.2)
Wyoming	25 (3.4)	31 (3.8)	30 (3.8)	46 (6.5)!	35 (5.0)<	30 (3.6)	29 (3.5)
TERRITORIES							
Guam	45 (2.1)	39 (2.9)	44 (2.1)<	49 (4.5)	48 (2.6)	44 (1.3)	46 (1.4)
Virgin Islands	47 (2.3)	46 (3.7)	50 (1.6)	59 (3.2)	60 (2.0)	54 (1.3)	51 (1.5)

TABLE 2.21 | **Percentages of Students Within Selected Demographic Subgroups in the Bottom One-Third of the Schools (continued)**

PUBLIC SCHOOLS	Grade 8 - 1990								
	Percentage of Students by Race/Ethnicity					Percentage of Students by Type of Community			
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	25 (4.3)	74 (5.8)	47 (9.8)!	36(15.9)!	63(33.5)!	0 (0.0)	63(12.3)!	56(20.0)!	33 (5.2)
Northeast	18(12.6)!	60(26.9)!	*** (***)	*** (***)	*** (***)	0 (0.0)	100 (0.0)!	*** (***)	10 (6.6)!
Southeast	55(10.9)!	84 (6.9)	*** (***)	*** (***)	*** (***)	*** (***)	*** (***)	62(48.6)!	63 (9.8)!
Central	10 (3.5)!	81(11.0)!	*** (***)	*** (***)	*** (***)	*** (***)	100 (0.0)!	*** (***)	15 (7.8)!
West	21 (6.9)!	42(19.8)!	44(13.2)!	*** (***)	*** (***)	0 (0.0)	35(22.2)!	74(32.6)!	29(11.4)!
STATES									
Alabama	22 (4.5)	57 (5.8)	51 (7.7)!	*** (***)	*** (***)	23(13.2)!	39(10.8)!	67(13.3)!	30 (6.0)!
Arizona	16 (3.0)	48 (9.9)!	56 (6.2)	*** (***)	86 (5.3)!	0 (0.0)	76(13.2)!	56(17.8)!	35 (6.2)
Arkansas	23 (3.5)	77 (3.7)	48 (8.9)	*** (***)	*** (***)	0 (0.0)	86(14.9)!	41 (9.2)!	29 (4.4)
California	13 (2.6)!	56 (7.7)!	53 (6.1)	36 (6.3)!	*** (***)	0 (0.0)	70(13.6)!	*** (***)	32 (6.5)!
Colorado	24 (3.1)	70 (9.5)!	62 (5.0)	*** (***)	*** (***)	5 (3.9)!	100 (0.0)!	19(11.3)!	39 (6.4)
Connecticut	26 (3.6)	78 (3.5)	82 (3.6)	*** (***)	*** (***)	4 (3.4)!	100 (0.0)	*** (***)	33 (5.9)!
Delaware	40 (0.8)	49 (1.9)	58 (4.6)	*** (***)	*** (***)	0 (0.0)	*** (***)	58 (0.4)	44 (0.4)
Dist. Columbia	*** (***)	39 (0.5)	42 (3.2)	*** (***)	*** (***)	0 (0.0)	55 (0.3)	*** (***)	0 (0.0)
Florida	22 (3.7)	54 (5.7)	51 (6.8)!	13 (5.6)!	*** (***)	0 (0.0)	67(11.0)	54(23.3)!	31 (5.7)!
Georgia	23 (4.5)	59 (6.1)	51 (6.6)	*** (***)	*** (***)	0 (0.0)	43(16.2)!	52(13.4)!	36 (6.6)!
Hawaii	18 (1.9)	*** (***)	38 (2.7)	35 (0.8)	*** (***)	0 (0.0)	75 (0.7)	*** (***)	24 (0.3)
Idaho	27 (0.8)	*** (***)	36 (4.0)	*** (***)	52 (8.3)!	*** (***)	*** (***)	32 (3.4)	30 (0.8)
Indiana	28 (4.4)	76 (6.6)	54 (8.5)!	*** (***)	*** (***)	10 (9.8)!	82(19.0)!	36(13.3)!	32 (5.4)
Iowa	37 (5.1)	*** (***)	53 (6.6)	*** (***)	*** (***)	0 (0.0)	100 (0.0)!	38 (9.0)!	41 (7.8)!
Kentucky	33 (5.1)	46 (6.9)	61 (7.5)!	*** (***)	*** (***)	8 (7.2)!	75(11.9)!	35 (9.3)!	33 (5.8)
Louisiana	16 (2.6)	59 (4.5)	45 (6.6)	*** (***)	*** (***)	0 (0.0)	54(10.7)!	69(11.4)!	21 (5.9)!
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	20 (3.6)	67 (3.8)	45 (5.8)	14 (5.2)!	*** (***)	12 (6.9)!	94 (5.9)!	26(26.1)!	34 (7.3)!
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	24 (4.4)	86 (3.3)	48 (7.2)!	*** (***)	*** (***)	0 (0.0)	92 (6.7)!	36(18.0)!	23 (6.6)!
Minnesota	34 (4.4)	74(12.2)!	44 (8.1)!	50 (8.0)!	*** (***)	28 (5.1)	*** (***)	39(10.3)!	25 (7.2)!
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	33 (3.5)	86 (2.9)	55 (5.5)	*** (***)	*** (***)	0 (0.0)	*** (***)	32 (8.5)!	47 (3.3)
New Hampshire	37 (0.9)	*** (***)	30 (8.0)!	*** (***)	*** (***)	6 (5.9)!	*** (***)	24(15.1)!	34 (0.9)
New Jersey	16 (3.7)!	82 (4.4)	64 (4.4)	11 (4.2)!	*** (***)	1 (0.6)!	90 (7.2)	*** (***)	33 (7.4)!
New Mexico	11 (1.1)	*** (***)	36 (1.5)	*** (***)	60 (3.5)	0 (0.0)	13 (0.5)	28 (3.8)	31 (0.8)
New York	16 (3.0)	84 (5.9)	79 (5.4)	37(11.0)	*** (***)	0 (0.0)	93 (5.1)	0 (0.0)	19 (5.8)!
North Carolina	25 (4.0)	47 (5.2)	55 (6.4)	*** (***)	80 (9.4)!	0 (0.0)	48(29.9)!	57(10.0)!	30 (4.7)
North Dakota	26 (2.4)	*** (***)	35 (7.5)!	*** (***)	89 (4.1)!	0 (0.0)	*** (***)	34 (5.7)	27 (3.0)
Ohio	27 (4.0)	79 (3.7)	58 (6.9)!	*** (***)	*** (***)	0 (0.0)	93 (7.4)	37(18.6)!	29 (5.0)
Oklahoma	28 (4.4)	58 (7.7)!	44 (8.5)!	*** (***)	48 (7.1)!	0 (0.0)	86 (9.7)!	48(11.4)!	25 (6.4)!
Pennsylvania	28 (4.0)	79 (8.1)!	67 (7.1)!	*** (***)	*** (***)	0 (0.0)	74(14.3)!	28(19.0)!	32 (4.6)
Rhode Island	33 (0.8)	85 (3.3)	76 (2.6)	*** (***)	*** (***)	4 (0.1)	68 (7.9)	*** (***)	45 (0.2)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	16 (3.9)!	56 (7.4)	47 (6.0)	*** (***)	*** (***)	0 (0.0)	78 (9.8)!	8 (7.3)!	28 (5.9)!
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	25 (3.7)	58 (5.7)	41 (5.7)	7 (2.7)!	*** (***)	8 (5.9)!	84(12.3)!	67 (9.8)!	33 (5.0)
West Virginia	31 (3.9)	53 (8.6)!	40 (6.6)!	*** (***)	*** (***)	*** (***)	28(11.9)!	14 (5.6)!	37 (4.8)
Wisconsin	29 (4.1)	87 (5.3)	51 (5.6)	*** (***)	*** (***)	0 (0.0)	100 (0.0)!	20 (8.6)!	32 (5.9)
Wyoming	33 (0.9)	*** (***)	45 (3.1)	*** (***)	59 (5.3)	*** (***)	*** (***)	29 (1.7)	34 (0.6)
TERRITORIES									
Guam	28 (4.0)	*** (***)	56 (2.5)	43 (0.9)	*** (***)	*** (***)	*** (***)	0 (0.0)	60 (0.2)
Virgin Islands	*** (***)	46 (0.8)	67 (2.3)	*** (***)	*** (***)	*** (***)	*** (***)	100 (0.0)	39 (0.2)

(xxx) Did not participate in the 1990 Trial State Assessment.

TABLE 2.21 | Percentages of Students Within Selected Demographic Subgroups in the Bottom One-Third of the Schools (continued)

PUBLIC SCHOOLS	Grade 8 - 1990						
	Percentage of Students by Parents' Highest Level of Education					Percentage of Students by Gender	
	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Male	Female
NATION	25 (3.8)	34 (4.3)	41 (5.4)	55 (6.7)	47 (6.4)	35 (4.4)	36 (4.4)
Northeast	15 (7.3)!	18 (9.6)!	36(20.4)!	*** (***)	*** (***)	23(10.6)!	24(12.7)!
Southeast	55 (9.6)	65(10.3)!	69(11.0)!	69(13.3)!	70(12.0)!	67 (9.4)!	61 (9.8)
Central	16 (5.3)!	23 (4.4)!	20 (4.9)!	*** (***)	*** (***)	22 (4.8)!	22 (5.1)!
West	21 (7.1)!	26 (7.8)!	40(11.1)!	48(10.5)!	41(10.5)!	29 (8.1)!	33 (7.5)!
STATES							
Alabama	29 (4.3)	30 (4.3)	35 (5.2)	42 (6.1)	47 (5.9)	34 (4.5)	33 (4.3)
Arizona	20 (3.7)	28 (3.7)	44 (4.7)	56 (6.3)	50 (5.3)	35 (4.1)	32 (4.0)
Arkansas	33 (2.9)	28 (3.8)	39 (4.4)	34 (5.1)	52 (5.7)	35 (3.7)	36 (3.7)
California	17 (2.8)	26 (4.1)	39 (5.5)	56 (6.4)	53 (5.2)	33 (4.2)	32 (3.9)
Colorado	22 (2.9)	33 (4.4)	48 (4.2)	55 (6.2)	45 (4.5)	34 (3.1)	33 (3.4)
Connecticut	23 (2.8)	41 (5.1)	48 (4.5)	64 (6.3)	65 (5.3)	36 (3.7)	37 (3.5)
Delaware	35 (1.3)	38 (2.3)	50 (1.6)	53 (5.4)	58 (4.0)	42 (1.2)	44 (1.3)
Dist. Columbia	29 (1.5)	32 (2.1)	46 (1.6)	47 (4.5)	43 (3.5)	39 (1.0)	37 (0.9)
Florida	23 (3.4)	31 (4.3)	37 (4.5)	50 (7.0)	46 (6.3)	33 (4.1)	33 (4.1)
Georgia	29 (4.5)	31 (4.9)	43 (5.2)	46 (6.9)	42 (6.4)	37 (4.6)	36 (4.7)
Hawaii	23 (1.0)	28 (1.9)	43 (1.7)	44 (5.2)	37 (2.7)	34 (0.9)	31 (1.0)
Idaho	25 (1.4)	27 (1.8)	35 (2.3)	34 (3.8)	40 (4.9)	28 (1.3)	29 (1.4)
Indiana	29 (4.9)	28 (4.1)	36 (5.0)	47 (6.5)	49 (6.6)	33 (4.5)	34 (4.3)
Iowa	35 (5.3)	39 (5.4)	40 (5.4)	42 (7.7)!	53 (6.9)	40 (5.1)	37 (5.3)
Kentucky	27 (4.0)	32 (5.4)!	38 (5.3)	47 (6.5)!	45 (6.9)!	36 (4.7)	35 (5.1)
Louisiana	29 (3.5)	27 (3.2)	39 (3.7)	41 (4.5)	40 (4.4)	34 (3.3)	34 (3.5)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	27 (3.1)	36 (3.5)	45 (4.3)	46 (6.4)	42 (4.9)	36 (3.3)	35 (3.6)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	23 (3.4)	33 (4.4)	42 (5.4)	54 (6.8)	45 (5.5)	33 (4.3)	35 (4.4)
Minnesota	30 (4.1)	36 (4.8)	40 (5.2)	49 (6.7)	52 (5.5)	37 (4.4)	35 (4.6)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	30 (2.9)	33 (3.4)	42 (5.0)	52 (7.1)	52 (4.5)	37 (3.4)	35 (3.4)
New Hampshire	27 (1.2)	40 (2.8)	45 (2.0)	57 (5.2)	35 (6.4)!	37 (1.2)	36 (1.4)
New Jersey	19 (3.2)	32 (4.7)	42 (5.1)	61 (6.1)	48 (5.5)	31 (4.0)	33 (3.7)
New Mexico	18 (1.0)	26 (1.8)	32 (1.7)	37 (3.2)	42 (3.4)	27 (1.2)	29 (1.3)
New York	30 (3.4)	35 (4.2)	37 (4.4)	59 (5.3)	69 (4.6)	39 (3.8)	41 (3.7)
North Carolina	29 (4.6)	32 (4.0)	37 (4.0)	42 (5.7)	45 (6.2)	35 (3.9)	34 (4.3)
North Dakota	24 (2.7)	30 (3.1)	32 (4.1)	56 (8.0)!	44 (5.9)	27 (2.9)	31 (2.9)
Ohio	25 (3.4)	32 (4.1)	37 (4.4)	49 (6.0)	54 (5.5)	33 (3.6)	34 (3.9)
Oklahoma	24 (3.9)	33 (5.3)	40 (4.8)	48 (5.5)	47 (7.4)!	34 (4.5)	33 (4.1)
Pennsylvania	25 (3.9)	36 (4.5)	40 (4.6)	57 (5.7)	56 (7.4)	35 (4.1)	37 (4.5)
Rhode Island	26 (1.3)	39 (2.6)	46 (2.2)	64 (3.8)	61 (3.4)	39 (1.4)	41 (0.8)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	22 (4.1)	28 (4.3)	37 (5.6)	45 (5.7)	42 (6.3)	32 (4.5)	33 (4.6)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	20 (2.8)	37 (4.0)	42 (4.9)	50 (6.5)	42 (4.9)	33 (3.7)	33 (3.8)
West Virginia	22 (3.7)	26 (4.1)	35 (4.3)	45 (6.0)	43 (5.9)	33 (4.2)	30 (3.8)
Wisconsin	28 (4.0)	33 (4.3)	39 (4.3)	49 (6.0)	44 (6.1)	34 (4.1)	35 (4.1)
Wyoming	30 (1.2)	33 (2.0)	40 (2.5)	49 (3.8)	52 (3.9)	36 (0.9)	35 (1.1)
TERRITORIES							
Guam	44 (2.1)	38 (3.3)	51 (2.0)	43 (3.4)	41 (2.9)	45 (1.2)	44 (1.2)
Virgin Islands	49 (3.3)	46 (3.4)	44 (2.5)	61 (3.0)	54 (2.6)	50 (1.2)	50 (1.1)

(xxx) Did not participate in the 1990 Trial State Assessment.

Summary

The NAEP results for demographic subpopulations indicate enormous diversity in mathematics performance across the nation and in the jurisdictions participating in the Trial State Assessments. The performance gaps were substantial between higher- and lower-performing groups, with the former including Asian/Pacific Islander and White students, those attending schools in advantaged urban areas, those whose parents had education beyond high school, and those with expectations to attend college. The lower-performing groups included American Indian, Black, and Hispanic students, those attending schools in disadvantaged urban areas, and those whose parents had a high-school education or less. Further, the higher-performing groups of students appeared to be more highly concentrated in particular schools, as were the lower-performing groups of students. That is, Asian/Pacific Islander students, students whose parents had graduated from high school, and students attending schools in advantaged urban communities were overrepresented in top-performing schools, whereas Black and Hispanic students, students whose parents had not graduated from high school, and students attending disadvantaged urban schools were overrepresented in bottom-performing schools.

Between 1990 and 1992, there were increases in national performance for various demographic groups, which generally were mirrored in the participating states and territories. However, these increases tended to occur more frequently for the higher-performing than lower-performing populations. For example, national performance in mathematics increased for White students at all three grades, but increases for Black and Hispanic students took place only at grade 12. In 1992, it was estimated that from 72 to 81 percent of the Asian/Pacific Islander and White students demonstrated mathematics achievement at or above the Basic level, while fewer than one-half of the American Indian, Black, and Hispanic students did.

The average mathematics proficiency of both males and females increased at all three grade levels between 1990 and 1992. However, males seem to still maintain a slight advantage at grade 12. Greater percentages of male than female twelfth graders reached the Proficient and Advanced achievement levels.

A gain at the Proficient level was made by eighth graders attending advantaged urban schools, however, their counterparts attending schools in disadvantaged urban communities experienced a decline in overall mathematics achievement. At grades 4 and 12, there were essentially no changes in performance for urban students in either advantaged or disadvantaged communities between 1990 and 1992.

At all three grades, average mathematics proficiency improved between 1990 and 1992 for students whose parents had graduated from college. The other groups classified by parents' education level showing increases were fourth graders whose parents had graduated from high school but had no further education, and students at grades 8 and 12 whose parents had not finished high school.

In 1992 at all three grades, students attending private schools (either Catholic or non-Catholic) had higher average mathematics proficiency than did students attending public schools. Students attending public schools showed increased mathematics proficiency between 1990 and 1992 at grades 4 and 8. Fourth graders attending Catholic schools also showed gains, as did eighth and twelfth graders attending other private schools (although the results for other private schools were less stable).

As might be anticipated because of the clustering of top-performing students in the better-performing schools, higher percentages of students in these schools reached each of the three achievement levels than did students in the lower-performing schools. In the top-performing one-third of the schools, for example, the estimated percentages of students reaching the Proficient level were 34, 45, and 29 percent, respectively, at grades 4, 8, and 12. The comparable percentages for students in the lower-performing one-third of schools were estimated to be 4, 8, and 5 percent, respectively. Additionally, gains in mathematics proficiency between 1990 and 1992 were noted for students in the top one-third of the schools. Average performance increased at all three grade levels, as did the percentage of students reaching the Basic level. Improvements also were noted at the Proficient level at grades 4 and 8. In contrast, even though students at grade 12 attending the lower-performing one-third of the schools showed an increase in average mathematics proficiency, significant improvements did not occur for students attending these schools at grades 4 and 8, and no significant improvements were found at any of the three achievement levels across the three grades assessed.

CHAPTER THREE

Mathematics Achievement by Content Areas for the Nation and the States

Chapters One and Two described the overall mathematics performance of students at grades 4, 8, and 12 and of specific demographic subgroups for the national and state samples. In this chapter, we examine students' performance as it relates to their mathematics proficiency in the various content areas within mathematics.[22] The five content areas are numbers and operations; measurement; geometry; data analysis, statistics, and probability; and algebra and functions. Data for a sixth area, estimation, were derived from student responses to a particular set of items administered at grades 4, 8, and 12 using a special paced-audiotape procedure that attempted to move students at a rate unreasonably fast for calculating answers, thus supporting the procedure of estimation. A brief description of each of the six areas within mathematics is given in FIGURE 3.1.

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[22] Further information is provided in Appendix D. For a full description of the framework underlying NAEP's 1990 and 1992 mathematics assessments, see *Mathematics Objectives, 1990 Assessment.*

Background and Description of the Mathematics Content Areas

FIGURE 3.1
Description of Content Areas

Numbers and Operations

This content area focuses on students' understanding of numbers (whole numbers, fractions, decimals, and integers) and their application to real-world situations, as well as computational and estimation situations. Understanding numerical relationships as expressed in ratios, proportions, and percents is emphasized. Students' skills in estimation, mental computation, use of calculators, generalization of numerical patterns, and verification of results are also included.

Measurement

This content area focuses on students' ability to describe real-world objects using numbers. Students are asked to identify attributes, select appropriate units, apply measurement concepts, and communicate measurement-related ideas to others. Questions are included that require an ability to read instruments using metric, customary, or nonstandard units with emphasis on precision and accuracy. Questions requiring estimation; measurements; and applications of measurements of length, time, money, temperature, mass/weight, area, volume capacity, and angles are also included under this content area.

Geometry

This content area focuses on students' knowledge of geometric figures and relationships and on their skills in working with this knowledge. These skills are important at all levels of schooling as well as in practical applications. Students need to be able to model and visualize geometric figures in one, two, and three dimensions and to communicate geometric ideas. In addition, students should be able to use informal reasoning to establish geometric relationships.

Data Analysis, Statistics, and Probability

This content area focuses on data representation and analysis across all disciplines and reflects the importance and prevalence of these activities in our society. Statistical knowledge and the ability to interpret data are necessary skills in the contemporary world. Questions emphasize appropriate methods for gathering data, the visual exploration of data, and the development and evaluation of arguments based on data analysis.

Algebra and Functions

This content area is broad in scope, covering a significant portion of the grade 9-12 curriculum, including algebra, elementary functions (pre-calculus), trigonometry, and some topics in discrete mathematics. For the fourth grade, and in part, at grade 8, algebraic and functional concepts are treated in more informal, exploratory ways. Proficiency in this content area requires both manipulative facility and conceptual understanding; it involves the ability to use algebra as a means of representation and to use algebraic skills and concepts as problem-solving tools. Functions are viewed not only in terms of algebraic formulas, but also in terms of verbal descriptions, tables of values, and graphs.

Estimation

Estimation involving whole numbers, fractions and decimals pervades most of the content areas in mathematics. Presented using a paced-audiotape procedure, questions assess students' abilities to make estimates appropriate to a wide variety of situations. Estimates take into consideration such factors as knowing when to estimate and whether to overestimate or underestimate in a particular problem.

* * *

A second feature of the design in the construction of the items was the anticipated cognitive ability required of the student to correctly respond to the item. These three categories, conceptual understanding, procedural knowledge, and problem solving, are detailed in FIGURE 3.2. The main intent in the use of these categories is to provide balance within each content area among items requiring the use of conceptual knowledge and those requiring procedural skill. The ability category of problem solving requires students to integrate their knowledge of both of the prior areas with their knowledge of problem-solving in the solution of new situations.

FIGURE 3.2
Description of Mathematical Abilities

The following three categories of mathematical abilities are not to be construed as hierarchical. For example, problem solving involves interactions between conceptual knowledge and procedural skills, but what is considered complex problem solving at one grade level may be considered conceptual understanding or procedural knowledge at another.

Conceptual Understanding

Students demonstrate conceptual understanding in mathematics when they provide evidence that they can recognize, label, and generate examples and counterexamples of concepts; can use and interrelate models, diagrams and varied representations of concepts; can identify and apply principles; know and can apply facts and definitions; can compare, contrast, and integrate related concepts and principles; can recognize, interpret, and apply the signs, symbols, and terms used to represent concepts; and can interpret the assumptions and relations involving concepts in mathematical settings. Such understandings are essential to performing procedures in a meaningful way and applying them in problem-solving situations.

Procedural Knowledge

Students demonstrate procedural knowledge in mathematics when they provide evidence of their ability to select and apply appropriate procedures correctly, verify and justify the correctness of a procedure using concrete models for symbolic methods, and extend or modify procedures to deal with factors inherent in problem settings. Procedural knowledge includes the various numerical algorithms in mathematics that have been created as tools to meet specific needs in an efficient manner. It also encompasses the abilities to read and produce graphs and tables, execute geometric constructions, and perform noncomputational skills such as rounding and ordering.

Problem Solving

In problem solving, students are required to use their reasoning and analytic abilities when they encounter new situations. Problem solving includes the ability to recognize and formulate problems; determine the sufficiency and consistency of data; use strategies, data, models and relevant mathematics; generate, extend and modify procedures; use reasoning (i.e., spatial, inductive, deductive, statistical and proportional); and judge the reasonableness and correctness of solutions.

AVERAGE PROFICIENCY IN MATHEMATICS CONTENT AREAS FOR THE NATION

TABLE 3.1 presents average mathematics proficiency in each of the five content areas as well as in estimation for students in grades 4, 8, and 12 for both 1992 and 1990. As discussed in earlier chapters, there were significant gains in overall mathematics proficiency at all three grades assessed at the national level from 1990 to 1992.

At grade 4, this overall growth was reflected across the content areas: numbers and operations, measurement, geometry, and algebra and functions as well as for estimation. Data analysis, statistics, and probability was not assessed at grade 4 in 1990, so no comparison was possible in this area.

TABLE 3.1 Average Proficiency in Mathematics Content Areas, Grades 4, 8, and 12

Grades	Assessment Years	Average Proficiency	Numbers and Operations	Measurement	Geometry	Data Analysis, Statistics, and Probability	Algebra and Functions	Estimation
4	1992	218(0.7)>	216(0.8)>	224(0.8)>	221(0.7)>	219(0.9)	217(0.9)>	208(1.5)>
	1990	213(0.9)	210(1.1)	218(1.0)	213(0.9)	--	214(0.9)	200(1.5)
8	1992	268(0.9)>	272(0.8)>	266(1.2)>	263(0.9)>	268(1.1)>	267(1.0)>	271(1.3)
	1990	263(1.3)	267(1.3)	259(1.6)	260(1.3)	263(1.6)	261(1.2)	269(1.2)
12	1992	299(0.9)>	298(0.9)>	297(0.9)>	300(1.0)>	298(1.0)>	300(1.0)>	294(1.2)
	1990	294(1.1)	293(1.1)	292(1.3)	295(1.3)	294(1.2)	296(1.2)	292(1.2)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated proficiencies appear in parentheses. It can be said with 95 percent certainty for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details).

At grade 8, there were significant gains in performance from 1990 in all mathematics content areas, but not in estimation. Parallel to the results at grade 8, twelfth graders also showed increased average proficiency in all content areas, but not in estimation.

STUDENTS' ACHIEVEMENT LEVELS IN ESTIMATION

Because the estimation section was administered via an audiotape which paced students through the questions, this portion of the assessment was piloted for the nation in 1990 and incorporated into the Trial State Assessment Program in 1992. As such, it was analyzed using a separate scale, which facilitated state-to-nation comparisons in 1990. Because these results are presented separately, NAGB developed achievement levels for this part of the assessment as well as for the overall composite mathematics scale encompassing the five content areas. The data for the estimation achievement levels are shown in TABLE 3.2. The scale-score cutpoints corresponding to the estimation achievement levels are shown in TABLE 3.3.

TABLE 3.2 National Percentages At or Above Achievement Levels in Estimation, Grades 4, 8, and 12

		Percentage of Students At or Above			
Grades	Assessment Years	Advanced	Proficient	Basic	Percentage Below Basic
4	1992	1(0.3)	30(1.7)>	91(1.1)	9(1.1)
	1990	0(0.4)	20(1.3)	90(1.8)	10(1.8)
8	1992	1(0.5)	20(1.8)	67(2.0)	33(2.0)
	1990	1(0.5)	18(1.6)	64(2.3)	36(2.3)
12	1992	4(0.7)	34(2.0)	82(1.7)	18(1.7)
	1990	4(0.9)	33(2.1)	79(1.6)	21(1.6)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level.
< The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level.
The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 or less were rounded to 0 percent.

TABLE 3.3 Mathematics Proficiency (Scale-Score Cutpoint) Corresponding to Each Achievement Level, Grades 4, 8, and 12

Grades	Advanced	Proficient	Basic
4	286	229	158
8	328	295	258
12	340	307	269

In 1992, very few students attained the Advanced level at any of the three grades assessed -- an estimated 1 to 4 percent. However, 91 percent of the fourth graders were estimated to be at or above the Basic level and 30 percent to have reached the Proficient level. This latter finding represented a significant improvement at grade 4 compared to 1990, when 20 percent of the students were estimated to be at or above the Proficient level. There were virtually no changes in performance at grades 8 and 12 between 1990 and 1992. In 1992, it was estimated that two-thirds of the eighth graders performed at or above the Basic level and one-fifth attained the Proficient level. At grade 12, approximately four-fifths performed at or above the Basic level and one-third reached the Proficient level or higher.

PROFILES OF PROFICIENCY IN MATHEMATICS CONTENT AREAS BY PERCENTILES

TABLE 3.4 shows the national percentiles of mathematical proficiency for each of the five content areas and estimation at grades 4, 8, and 12. Examining these data for 1992 and 1990 by different content areas provides a cross-sectional view of changes in student performance for the entire distribution of performance. In the following discussion, special emphasis will be given to the 25th and 75th percentiles (the endpoints of the interquartile range), as they reflect the lower and upper ends of proficiency for the middle 50 percent of the student body. In some ways, these percentiles mark the lower and upper boundaries of "typical" student performance.

TABLE 3.4 Percentiles of Proficiency in Mathematics Content Areas, Grades 4, 8, and 12

	Assessment Years	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
Grade 4								
Numbers & Operations	**1992**	156(1.0)	170(1.3)	192(0.8)	217(1.0)>	240(1.0)>	259(1.1)>	270(2.3)
	1990	154(1.9)	167(2.4)	189(1.5)	212(1.1)	233(1.3)	252(1.9)	264(2.1)
Measurement	**1992**	164(1.8)	178(1.3)	201(1.0)	226(0.7)>	248(1.1)>	266(1.1)	277(1.3)
	1990	160(2.4)	174(1.3)	197(2.0)	220(1.0)	242(1.4)	261(2.0)	272(2.1)
Geometry	**1992**	168(1.2)	180(1.3)>	200(0.7)>	222(1.1)>	243(1.1)>	260(1.1)>	270(0.8)
	1990	162(2.7)	173(1.9)	193(1.5)	214(1.0)	234(1.1)	252(1.7)	264(2.8)
Data Analysis	**1992**	162(1.1)	175(1.0)	198(1.1)	221(1.1)	242(1.2)	260(1.7)	271(2.2)
	1990	--	--	--	--	--	--	--
Algebra & Functions	**1992**	159(2.0)	172(1.3)	195(1.2)	218(1.1)	240(1.4)	259(1.5)	270(1.4)
	1990	160(1.7)	173(1.4)	193(1.1)	215(1.2)	235(1.5)	254(1.6)	264(1.8)
Estimation	**1992**	146(2.4)	160(1.5)	184(2.4)	210(1.8)>	234(1.5)>	253(3.1)	263(2.1)
	1990	147(3.5)	158(2.4)	178(2.0)	200(2.6)	223(1.9)	243(2.4)	255(4.7)
Grade 8								
Numbers & Operations	**1992**	212(1.5)	225(1.2)	248(1.3)	273(1.1)>	297(1.1)>	316(1.1)>	327(1.5)>
	1990	208(2.5)	221(3.1)	243(1.5)	268(1.3)	291(1.0)	310(1.1)	320(1.4)
Measurement	**1992**	191(1.9)	207(1.5)	234(1.6)	266(1.3)>	297(1.5)>	324(1.7)>	339(1.8)>
	1990	186(3.2)	203(1.8)	231(1.8)	260(1.9)	288(2.3)	312(3.4)	326(2.1)
Geometry	**1992**	205(1.3)	218(1.4)	239(1.2)	264(1.0)	288(1.5)	308(1.3)	319(1.4)
	1990	200(3.1)	214(2.2)	237(1.7)	261(1.6)	284(1.2)	303(1.7)	315(3.7)
Data Analysis	**1992**	198(2.0)	214(1.1)	240(1.7)	270(1.4)	298(1.4)>	321(1.9)>	334(2.1)>
	1990	193(2.2)	209(2.0)	236(2.9)	266(1.8)	292(1.4)	313(1.5)	326(1.7)
Algebra & Functions	**1992**	206(1.6)	219(1.4)	242(1.1)	268(1.1)>	293(1.1)>	315(1.7)	328(2.2)
	1990	201(2.6)	214(2.9)	237(1.6)	262(1.1)	287(1.5)	308(2.2)	321(2.1)
Estimation	**1992**	222(4.3)	233(2.1)	251(2.0)	272(1.6)	291(1.9)	306(2.5)	315(2.9)
	1990	222(1.4)	232(1.3)	249(1.8)	269(2.3)	288(2.3)	305(1.2)	313(2.1)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at the 95 percent confidence level. The standard errors of the estimated proficiencies appear in parentheses. It can be said with 95 percent certainty for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details).

Note: There was no Data Analysis, Statistics, and Probability Scale in 1990 for grade 4.

TABLE 3.4 **Percentiles of Proficiency in Mathematics Content Areas, Grades 4, 8, and 12 (continued)**

	Assessment Years	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
Grade 12								
Numbers & Operations	**1992**	244(1.6)	256(1.1)>	277(1.2)>	299(1.1)>	321(0.9)>	339(1.5)	349(1.3)
	1990	238(3.0)	249(1.7)	271(1.7)	294(1.0)	316(1.3)	335(1.7)	346(1.7)
Measurement	**1992**	234(1.3)	248(0.9)	272(1.1)	298(0.9)	324(1.2)>	344(1.9)	356(1.4)
	1990	230(2.8)	244(1.9)	268(2.1)	294(2.7)	318(0.9)	339(1.9)	351(1.9)
Geometry	**1992**	235(1.9)>	249(1.5)>	274(1.3)>	302(1.0)	328(1.2)	349(1.4)	362(1.7)
	1990	226(2.6)	240(1.8)	268(1.5)	297(2.2)	324(1.9)	347(2.0)	361(1.8)
Data Analysis	**1992**	238(1.6)	252(1.6)	275(1.4)	299(1.2)	322(1.1)	341(1.0)	352(1.7)
	1990	233(2.3)	248(1.6)	271(1.7)	297(1.2)	319(1.4)	338(1.8)	348(2.4)
Algebra & Functions	**1992**	238(1.4)	250(1.4)	273(1.1)	300(1.2)	327(1.5)	347(1.3)	358(0.9)
	1990	233(2.1)	246(1.8)	270(1.4)	297(1.3)	322(1.3)	343(1.5)	355(2.3)
Estimation	**1992**	248(2.3)	258(1.4)>	276(1.9)	295(1.5)	314(0.9)	328(2.1)	337(2.1)
	1990	241(3.0)	252(1.5)	273(1.6)	295(2.2)	313(1.3)	327(1.1)	337(3.9)

At grade 4, across the content areas there were more statistically significant increases for students in the higher performing half of the distribution than for those in the lower performing half, and similar results were observed for estimation. For example, a comparison of fourth graders' performance at the 25th percentile revealed significant gains from 1990 to 1992 only within the content area of geometry. At the 75th percentile, students in 1992 showed significant gains over the performance noted in 1990 in all mathematics areas measured in both assessments, except algebra and functions. (The interquartile ranges for the six areas were: numbers and operations-48, measurement-47, geometry-43, data analysis-44, algebra and functions-45, and estimation-50.)

The picture at grade 8 is very similar. All the statistically significant increases in performance within the content areas were for students in the higher performing half of the distributions. At the 25th as well as 10th and 5th percentiles, there was no mathematics area in which the increases in performance from 1990 to 1992 reached statistical significance. At the 75th percentile level, there were significant gains from 1990 to 1992 in the areas of numbers and operations, measurement, data analysis, and algebra and functions. (The interquartile ranges for the six areas were: numbers and operations-49, measurement-63, geometry-49, data analysis-58, algebra and functions-51, and estimation-40.)

At grade 12, there was a pattern of apparent improvement between 1990 and 1992 within most of the content areas moving from the 5th percentile across to the 95th percentile level even though many of the differences were not statistically significant. However, for the high-school seniors there was more statistically significant improvement for the lower half of the distribution than the upper half. For example, at the 25th percentile level, students showed significant improvement from 1990 proficiency levels in numbers and operations and in geometry. At the 10th percentile, there was improvement in estimation as well.

Mirroring the fourth and eighth graders, the 75th percentile at the twelfth grade increased significantly in numbers and operations and measurement. However, there were no significant gains at the 90th or 95th percentiles in any content area. (The interquartile ranges for the grade 12 data reflected the following spreads: numbers and operations-44, measurement-52, geometry-54, data analysis-47, algebra and functions-54, and estimation-38.)

AVERAGE PROFICIENCY IN MATHEMATICS CONTENT AREAS BY REGION

TABLE 3.5 presents average content-area proficiency for students attending school in four regions of the country -- Northeast, Southeast, Central, West. The results indicate that the general pattern of national gains across content areas at all three grades was not necessarily reflected in each region.

At grade 4, the data reveal a relatively stable ordering of the regions from 1990 to 1992 with respect to average proficiency across the content areas. In general, the students in the Northeast and Central regions had consistently higher proficiencies than those from the Southeast, with students from the West performing somewhere in between. For example, in measurement, data analysis, and algebra and functions, average proficiencies in the Central and Northeast

TABLE 3.5 Average Proficiency in Mathematics Content Areas by Region, Grades 4, 8, and 12

	Assessment Years	Numbers and Operations	Measurement	Geometry	Data Analysis, Statistics, and Probability	Algebra and Functions	Estimation
Grade 4							
Northeast	1992	221(2.1)>	228(2.2)>	224(2.1)>	223(2.1)	223(2.1)>	210(5.1)
	1990	213(2.9)	219(3.0)	215(3.0)	--	216(2.8)	211(3.5)
Southeast	1992	207(1.7)	216(1.9)>	213(1.3)>	212(1.9)	208(1.9)	195(3.8)
	1990	202(2.3)	209(2.3)	205(2.1)	--	205(1.9)	187(3.0)
Central	1992	220(2.0)>	230(2.1)>	225(1.6)>	224(2.0)	221(1.9)	215(3.7)
	1990	213(2.0)	223(2.1)	216(1.7)	--	217(1.9)	205(4.2)
West	1992	215(1.7)	222(1.6)	222(1.2)	218(1.8)	216(1.9)	213(3.0)>
	1990	213(2.4)	222(2.7)	217(2.8)	--	217(2.5)	201(3.0)
Grade 8							
Northeast	1992	273(2.5)	267(3.3)	264(2.8)	271(3.1)	268(2.6)	271(4.7)
	1990	273(2.5)	266(3.7)	268(2.9)	273(3.4)	268(2.8)	277(3.0)
Southeast	1992	265(1.4)	256(1.8)>	256(1.5)	261(1.9)	261(1.4)	265(2.6)
	1990	261(2.7)	249(2.9)	251(2.8)	254(3.2)	257(2.3)	264(2.0)
Central	1992	278(1.9)>	273(2.3)>	270(1.7)>	275(2.1)>	273(2.1)>	276(2.1)
	1990	271(2.0)	264(2.9)	263(2.5)	267(2.4)	263(2.3)	271(3.5)
West	1992	271(1.8)>	267(2.7)>	263(2.1)	268(2.3)	266(2.5)	270(1.9)
	1990	264(2.6)	258(3.1)	260(2.5)	261(3.2)	260(2.5)	266(2.1)
Grade 12							
Northeast	1992	301(1.4)	300(1.5)	303(1.6)	300(1.6)	304(1.7)	294(3.1)
	1990	298(1.9)	298(2.8)	302(2.7)	300(2.7)	302(2.4)	296(3.0)
Southeast	1992	293(1.3)>	285(1.5)	292(1.6)>	291(1.6)	292(1.8)	290(2.5)
	1990	285(2.1)	280(2.6)	282(2.3)	285(2.5)	286(2.3)	286(2.2)
Central	1992	302(1.7)>	303(2.1)>	305(1.9)	303(2.0)	304(2.1)	297(1.9)
	1990	296(2.4)	296(2.8)	299(3.2)	298(2.4)	298(2.8)	295(1.7)
West	1992	297(1.6)	300(1.9)	301(2.1)	296(2.3)	298(1.7)	295(2.5)
	1990	293(2.4)	294(3.0)	295(2.9)	293(2.5)	295(2.7)	292(3.2)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details).

Note: There was no Data Analysis, Statistics, and Probability Scale in 1990 for grade 4.

regions were significantly higher than those in the Southeast. In numbers and operations and in geometry, average proficiency in the Southeast was significantly lower than in the other three regions. In estimation, the only difference was between the Central and Southeast regions, where average proficiency of the students in the Central region was 20 scale points higher.

In the Central region, fourth graders showed significant gains in numbers and operations, measurement, and geometry. The Southeast improved in measurement and geometry, and the West improved in estimation.

At grade 8, the ordering of regions from high to low average proficiency was virtually identical from one content area to the next in both assessments -- Central, Northeast, West, and Southeast. However, the only statistically significant differences in proficiency were between the Central and Southeast regions and these occurred for every mathematics area except estimation. Eighth graders in the Central region had significantly higher average proficiencies in 1992 than they did in 1990 in each of the five content areas, but not in estimation. The West showed gains in both numbers and operations and measurement, and the Southeast improved in measurement. In contrast, an interesting pattern was noted for eighth graders in the Northeast, where performance was essentially the same from assessment to assessment. However, several content areas showed a slight, but not significant, decrease over the two years.

At grade 12, students in the Central, Northeast, and West regions tended to perform better across the content areas than did those in the Southeast. For example, in numbers and operations, data analysis, and algebra and functions, twelfth graders' proficiencies in the Central and Northeast regions were significantly higher than those in the Southeast. In measurement and geometry, the students in the Southeast had significantly lower proficiencies than did students in the other three regions. However, among the few statistically significant increases noted at grade 12 were those for both numbers and operations and geometry proficiency in the Southeast from 1990 to 1992. The other significant gains were for the Central region in numbers and operations and measurement.

Across the regions and grades assessed, more gains were posted in numbers and operations, measurement, and geometry as compared with data analysis, statistics, and probability; algebra and functions; and estimation.

Average Proficiency in Mathematics Content Areas for the States

TABLE 3.6 presents the data for average proficiency in the content areas from the 1992 Trial State Assessments at grades 4 and 8, plus the 1990 data for grade 8.

At grade 8, three states showed increased performance across all five content areas -- Hawaii, North Carolina, and Rhode Island. Minnesota showed improvement in four content areas, all but numbers and operations. Colorado and New Hampshire had increases in three areas. For Colorado, improvement was noted in numbers and operations, measurement, and algebra and functions. For New Hampshire, improvement was noted in numbers and operations, measurement, and data analysis. States showing significant improvement in two content areas included Idaho, Iowa, and Texas: all three posted gains in measurement as well as in algebra and functions. Also, the District of Columbia improved in numbers and operations as well as in data analysis, Kentucky in numbers and operations as well as in measurement, and Guam in data analysis as well as in algebra and functions. Additionally, Arizona improved in algebra and functions, California in measurement, Connecticut in measurement, New Mexico in numbers and operations, New York in numbers and operations, Oklahoma in measurement, Wyoming in measurement, and the Virgin Islands in data analysis.

FIGURE 3.3 presents average performance across the content areas by 20 percent bands or "quintiles" for the participating jurisdictions. Iowa, Maine, Minnesota, New Hampshire, North Dakota, and Wisconsin had average proficiency in the top 20 percent across the participating jurisdictions in all five content areas and estimation at both grade levels. For some states and territories, performance was not as consistent either within a grade or across grades. For example, Connecticut, which was consistently in the top 20 percent at grade 4, tended to have performance in the second highest quintile at grade 8. Conversely, average proficiency in Idaho tended to be in the second to the top quintile at grade 4, but in the top quintile at grade 8.

TABLE 3.6 | Average Proficiency in Mathematics Content Areas

PUBLIC SCHOOLS	Grade 4 - 1992					
	Numbers and Operations	Measurement	Geometry	Data Analysis, Statistics, and Probability	Algebra and Functions	Estimation
NATION	214 (0.9)	222 (0.9)	220 (0.7)	218 (1.0)	216 (0.9)	206 (1.8)
Northeast	220 (2.2)	227 (2.3)	224 (2.2)	223 (2.3)	222 (2.2)	205 (6.8)!
Southeast	205 (2.0)	214 (2.1)	212 (1.6)	210 (2.2)	206 (2.2)	195 (3.9)
Central	219 (2.3)	228 (2.4)	224 (2.0)	223 (2.3)	220 (2.1)	212 (4.3)
West	214 (1.8)	221 (1.6)	222 (1.3)	217 (1.9)	215 (1.9)	213 (3.5)
STATES						
Alabama	204 (1.8)	213 (1.7)	209 (1.4)	209 (1.7)	204 (1.8)	198 (1.9)
Arizona	210 (1.4)	219 (1.3)	219 (1.0)	214 (1.3)	213 (1.6)	205 (1.4)
Arkansas	205 (1.1)	215 (1.7)	212 (1.3)	211 (1.3)	206 (1.0)	197 (1.6)
California	204 (1.8)	210 (1.8)	213 (1.6)	206 (1.6)	208 (2.0)	202 (1.8)
Colorado	216 (1.1)	225 (1.2)	227 (1.0)	220 (1.2)	217 (1.3)	212 (1.2)
Connecticut	223 (1.3)	230 (1.2)	230 (1.3)	225 (1.7)	225 (1.4)	217 (1.4)
Delaware	214 (0.9)	220 (0.9)	219 (0.9)	219 (1.4)	215 (1.3)	203 (1.5)
Dist. Columbia	189 (0.7)	193 (0.9)	198 (0.9)	189 (0.9)	191 (0.7)	171 (1.0)
Florida	208 (1.6)	219 (1.8)	215 (1.2)	214 (1.5)	211 (2.3)	200 (1.9)
Georgia	211 (1.3)	219 (1.5)	216 (1.2)	218 (1.3)	213 (2.4)	199 (1.5)
Hawaii	211 (1.4)	216 (1.7)	218 (1.2)	212 (1.5)	210 (1.7)	199 (1.7)
Idaho	216 (1.3)	227 (1.0)	226 (1.1)	219 (1.0)	217 (1.2)	211 (1.2)
Indiana	216 (1.3)	226 (1.4)	223 (1.2)	222 (1.3)	218 (1.9)	210 (1.6)
Iowa	227 (1.3)	234 (1.4)	229 (1.0)	230 (1.0)	226 (1.4)	221 (1.4)
Kentucky	211 (1.2)	218 (1.1)	215 (1.1)	215 (1.4)	212 (1.5)	205 (1.3)
Louisiana	199 (1.5)	208 (1.6)	206 (1.7)	204 (1.8)	201 (2.0)	188 (1.7)
Maine	227 (1.4)	236 (1.4)	236 (0.9)	231 (1.3)	228 (1.8)	220 (1.5)
Maryland	214 (1.4)	220 (1.7)	219 (1.2)	217 (1.5)	215 (1.4)	200 (1.5)
Massachusetts	224 (1.2)	229 (1.6)	229 (1.2)	225 (1.5)	222 (1.4)	217 (1.4)
Michigan	215 (1.9)	225 (2.0)	222 (1.7)	218 (1.8)	216 (2.2)	209 (2.2)
Minnesota	225 (1.2)	233 (1.3)	230 (0.9)	227 (1.2)	225 (1.1)	223 (1.4)
Mississippi	198 (1.3)	206 (1.5)	202 (1.0)	199 (1.5)	195 (1.3)	188 (1.6)
Missouri	217 (1.4)	226 (1.7)	224 (1.1)	223 (1.4)	220 (1.3)	211 (1.7)
Nebraska	221 (1.5)	230 (1.5)	229 (1.2)	225 (1.7)	220 (1.7)	216 (1.5)
New Hampshire	225 (1.3)	234 (1.5)	233 (1.2)	229 (1.6)	227 (1.5)	222 (1.5)
New Jersey	225 (1.6)	230 (1.9)	226 (1.4)	225 (1.6)	224 (2.0)	213 (1.9)
New Mexico	207 (1.8)	216 (1.6)	219 (1.2)	214 (1.6)	210 (2.0)	203 (1.8)
New York	215 (1.4)	221 (1.7)	218 (1.2)	221 (1.6)	215 (1.7)	204 (1.8)
North Carolina	208 (1.3)	216 (1.3)	215 (1.6)	214 (1.3)	210 (1.4)	198 (1.4)
North Dakota	224 (0.9)	235 (1.3)	229 (1.0)	229 (1.3)	225 (1.2)	222 (1.3)
Ohio	214 (1.4)	223 (1.6)	221 (1.3)	218 (1.4)	216 (1.4)	210 (1.4)
Oklahoma	216 (1.1)	224 (1.3)	220 (1.1)	221 (1.5)	217 (1.5)	211 (1.4)
Pennsylvania	221 (1.6)	229 (1.6)	223 (1.2)	223 (1.5)	221 (1.4)	212 (1.6)
Rhode Island	212 (1.7)	218 (1.8)	216 (1.6)	213 (1.6)	212 (1.9)	206 (1.8)
South Carolina	208 (1.2)	218 (1.6)	215 (1.1)	211 (1.4)	207 (1.5)	195 (1.5)
Tennessee	207 (1.5)	213 (1.4)	211 (1.6)	211 (1.6)	209 (1.7)	200 (1.5)
Texas	214 (1.4)	220 (1.6)	220 (1.4)	218 (1.4)	216 (1.4)	199 (1.7)
Utah	219 (1.2)	229 (1.1)	227 (0.9)	221 (1.3)	221 (1.1)	213 (1.0)
Virginia	217 (1.6)	224 (1.5)	222 (1.3)	223 (1.3)	217 (1.6)	206 (1.5)
West Virginia	210 (1.2)	223 (1.3)	217 (1.0)	214 (1.2)	211 (1.4)	204 (1.4)
Wisconsin	225 (1.3)	234 (1.2)	228 (1.2)	229 (1.2)	225 (1.4)	219 (1.7)
Wyoming	221 (1.1)	230 (1.2)	228 (1.1)	224 (1.1)	222 (1.2)	216 (1.1)
TERRITORY						
Guam	188 (1.1)	192 (1.1)	201 (1.2)	189 (0.9)	192 (1.0)	173 (0.8)

The standard errors of the estimated proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. ! Interpret with caution - the nature of the sample does not allow accurate determination of the variability of this estimated statistic.

TABLE 3.6 | Average Proficiency in Mathematics Content Areas (continued)

	Grade 8 - 1992						Grade 8 - 1990				
PUBLIC SCHOOLS	Numbers and Operations	Measurement	Geometry	Data Analysis, Statistics, and Probability	Algebra and Functions	Estimation	Numbers and Operations	Measurement	Geometry	Data Analysis, Statistics, and Probability	Algebra and Functions
NATION	270 (0.9)	264 (1.3)	262 (1.0)	267 (1.2)	266 (1.1)	269 (1.5)	266 (1.3)	258 (1.6)	259 (1.4)	262 (1.6)	260 (1.3)
Northeast	271 (2.7)	265 (3.9)	263 (3.1)	269 (3.5)	266 (2.8)	269 (5.1)	272 (2.9)	267 (4.2)	268 (3.3)	273 (3.9)	268 (3.3)
Southeast	263 (1.2)	253 (1.6)	253 (1.3)	258 (1.7)	259 (1.3)	264 (2.6)	260 (2.8)	248 (2.9)	251 (2.8)	253 (3.2)	256 (2.4)
Central	277 (2.2)	272 (2.7)	269 (2.1)	274 (2.5)	272 (2.5)	274 (2.6)	270 (2.0)	262 (3.0)	261 (2.7)	265 (2.6)	262 (2.4)
West	270 (1.8)	266 (2.8)	263 (2.2)	267 (2.4)	266 (2.6)	270 (2.0)	263 (2.5)	257 (3.2)	260 (2.6)	261 (3.2)	259 (2.6)
STATES											
Alabama	258 (1.4)	245 (2.3)	245 (1.9)	250 (2.1)	253 (1.9)	260 (1.1)	259 (1.1)	248 (1.4)	249 (1.3)	251 (1.5)	252 (1.3)
Arizona	269 (1.2)	264 (2.3)	260 (1.0)	265 (1.7)	264 (1.5) >	269 (1.1)	265 (1.3)	257 (1.6)	256 (1.3)	259 (1.9)	258 (1.5)
Arkansas	262 (1.3)	251 (1.3)	250 (1.5)	254 (1.5)	255 (1.5)	263 (1.3)	262 (0.8)	254 (1.3)	253 (0.9)	255 (1.1)	253 (1.1)
California	263 (1.7)	258 (2.1) >	259 (1.9)	258 (2.2)	258 (2.2)	263 (1.4)	260 (1.3)	252 (1.4)	256 (1.3)	255 (1.6)	256 (1.3)
Colorado	273 (1.1) >	273 (1.6) »	269 (1.1)	274 (1.4)	270 (1.1) >	273 (0.9)	269 (1.0)	265 (1.2)	266 (1.1)	270 (1.1)	266 (1.0)
Connecticut	277 (1.3)	275 (1.6) >	268 (1.0)	274 (1.5)	270 (1.4)	275 (1.1)	274 (1.0)	268 (1.6)	266 (1.1)	271 (1.5)	268 (1.5)
Delaware	267 (1.0)	258 (1.5)	257 (1.1)	262 (1.3)	263 (1.3)	264 (0.9)	265 (0.9)	259 (1.2)	256 (1.1)	262 (1.5)	259 (1.0)
Dist. Columbia	243 (0.8) >	221 (1.6)	231 (1.3)	229 (1.2) >	237 (1.1)	241 (0.8)	239 (0.9)	222 (1.4)	229 (1.1)	223 (1.4)	235 (1.1)
Florida	264 (1.4)	254 (2.1)	255 (1.3)	259 (1.8)	260 (1.6)	264 (1.1)	260 (1.2)	252 (1.5)	251 (1.3)	255 (1.7)	255 (1.5)
Georgia	265 (1.1)	253 (2.1)	253 (1.4)	259 (1.6)	259 (1.4)	263 (0.9)	263 (1.3)	253 (1.5)	257 (1.4)	260 (1.6)	257 (1.5)
Hawaii	261 (0.9) »	254 (1.0) >	257 (1.2) >	249 (1.5) >	256 (1.1) »	260 (0.8)	257 (0.7)	249 (0.9)	252 (0.7)	243 (1.1)	249 (1.0)
Idaho	277 (0.8)	276 (1.4) >	271 (0.9)	274 (1.1)	274 (0.9) >	274 (0.6)	275 (0.8)	269 (1.1)	269 (1.1)	273 (0.8)	270 (0.9)
Indiana	272 (1.3)	269 (1.7)	266 (1.2)	273 (1.5)	267 (1.3)	271 (0.9)	271 (1.1)	265 (2.0)	264 (1.2)	269 (1.3)	265 (1.2)
Iowa	285 (1.0)	287 (1.6) »	278 (1.2)	285 (1.4)	280 (1.2) >	282 (0.9)	282 (1.0)	276 (1.6)	274 (1.3)	280 (1.2)	275 (1.2)
Kentucky	266 (1.1) >	259 (1.3) >	256 (1.1)	262 (1.8)	260 (1.4)	266 (0.9)	261 (1.2)	254 (1.2)	253 (1.3)	258 (1.3)	257 (1.3)
Louisiana	256 (1.6)	242 (2.0)	244 (1.7)	248 (1.9)	249 (1.9)	258 (1.4)	253 (1.2)	241 (1.4)	243 (1.3)	243 (1.6)	246 (1.5)
Maine	280 (1.2)	282 (1.5)	274 (0.9)	282 (1.4)	274 (1.2)	275 (1.0)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	269 (1.3)	261 (1.7)	259 (1.3)	266 (1.4)	264 (1.6)	264 (1.1)	264 (1.3)	256 (1.7)	257 (1.5)	261 (1.7)	262 (1.6)
Massachusetts	276 (1.0)	270 (1.5)	267 (1.1)	274 (1.5)	271 (1.4)	275 (0.9)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	270 (1.3)	266 (2.0)	261 (1.5)	268 (1.4)	267 (1.6)	268 (1.2)	269 (1.2)	261 (1.5)	261 (1.2)	265 (1.7)	264 (1.3)
Minnesota	282 (1.1)	285 (1.5) »	278 (1.1) >	284 (1.4) >	281 (1.1) »	284 (0.8)	279 (1.1)	272 (1.2)	272 (1.0)	279 (1.1)	274 (1.1)
Mississippi	256 (1.2)	236 (2.1)	239 (1.2)	243 (1.8)	245 (1.6)	259 (1.0)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	272 (1.3)	271 (1.8)	266 (1.3)	272 (1.6)	270 (1.4)	271 (1.1)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	279 (1.1)	278 (1.7)	274 (1.3)	278 (1.7)	275 (1.5)	277 (1.0)	279 (1.0)	273 (1.6)	273 (1.2)	278 (1.1)	273 (1.0)
New Hampshire	280 (0.9) »	280 (1.9) >	273 (1.0)	281 (1.4) >	274 (1.0)	277 (0.9)	275 (0.9)	272 (1.6)	271 (1.0)	275 (1.2)	272 (1.0)
New Jersey	276 (1.6)	268 (2.2)	265 (1.7)	271 (2.1)	272 (1.8)	274 (1.3)	274 (1.2)	267 (1.4)	266 (1.2)	270 (1.4)	268 (1.4)
New Mexico	263 (1.0) >	257 (1.5)	256 (0.9)	258 (1.4)	257 (1.1)	265 (1.0)	259 (0.8)	254 (1.0)	257 (0.7)	253 (1.3)	257 (0.9)
New York	270 (1.9) >	262 (2.5)	261 (2.4)	268 (2.9)	265 (2.4)	266 (1.8)	264 (1.3)	255 (2.1)	260 (1.5)	263 (1.7)	260 (1.4)
North Carolina	261 (1.3) >	253 (1.8) »	254 (1.4) >	258 (1.4) »	259 (1.5) »	263 (1.0)	256 (1.1)	242 (1.3)	249 (1.1)	248 (1.6)	251 (1.2
North Dakota	286 (1.2)	285 (1.9)	277 (1.3)	286 (1.4)	279 (1.2)	283 (1.0)	286 (1.3)	279 (1.6)	278 (1.3)	285 (1.6)	275 (1.2)
Ohio	272 (1.5)	266 (2.3)	262 (1.3)	270 (2.1)	267 (1.8)	269 (1.1)	269 (1.1)	259 (1.3)	260 (1.1)	266 (1.1)	262 (1.0)
Oklahoma	271 (1.3)	266 (2.3) >	262 (1.3)	269 (1.5)	267 (1.3)	271 (0.9)	268 (1.3)	258 (1.6)	260 (1.4)	264 (2.1)	262 (1.3)
Pennsylvania	274 (1.6)	271 (2.0)	265 (1.5)	273 (1.8)	270 (1.5)	272 (1.3)	270 (1.7)	264 (2.0)	263 (1.7)	268 (1.9)	265 (1.6)
Rhode Island	269 (0.7) »	263 (1.1) »	259 (0.8) >	266 (1.2) »	266 (1.3) >	269 (0.7)	264 (0.6)	257 (0.7)	256 (0.9)	259 (0.7)	261 (0.9
South Carolina	265 (1.0)	257 (1.6)	256 (1.2)	258 (1.4)	259 (1.3)	264 (0.9)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	264 (1.3)	253 (2.0)	252 (1.5)	259 (1.6)	257 (1.7)	264 (1.4)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	267 (1.4)	260 (1.7) >	262 (1.5)	263 (1.6)	266 (1.4) »	267 (0.9)	262 (1.3)	254 (1.5)	258 (1.4)	257 (1.8)	256 (1.6)
Utah	276 (0.8)	275 (1.3)	269 (1.2)	275 (1.1)	272 (1.0)	274 (0.7)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	272 (1.1)	265 (1.7)	261 (1.3)	268 (1.4)	267 (1.4)	271 (1.1)	268 (1.4)	260 (1.8)	261 (1.6)	264 (1.9)	265 (1.6)
West Virginia	263 (1.0)	256 (1.6)	254 (1.1)	260 (1.2)	257 (1.3)	263 (0.8)	260 (1.0)	253 (1.2)	254 (1.0)	256 (1.6)	254 (1.1)
Wisconsin	280 (1.5)	279 (2.0)	272 (1.6)	280 (2.1)	275 (1.6)	278 (1.1)	278 (1.4)	273 (1.6)	272 (1.5)	277 (1.4)	271 (1.2)
Wyoming	276 (0.8)	278 (1.2) »	272 (0.7)	275 (1.3)	271 (1.2)	276 (0.9)	275 (0.7)	270 (0.8)	270 (0.7)	273 (1.0)	270 (0.8)
TERRITORIES											
Guam	240 (1.3)	228 (1.6)	239 (1.4)	221 (1.9) >	235 (1.1) >	244 (1.1)	240 (0.7)	229 (1.3)	236 (1.1)	214 (1.2)	230 (1.0)
Virgin Islands	231 (1.0)	211 (1.7)	222 (0.8)	214 (2.5) »	221 (1.2)	231 (1.5)	229 (1.0)	216 (2.0)	223 (1.3)	196 (2.0)	219 (1.5)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

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FIGURE 3.3

Average Proficiency by Mathematics Subscales for Five Performance Bands (Quintiles)
1992 Grades 4 and 8

THE NATION'S REPORT CARD naep	GRADE 4							GRADE 8						
	Overall	Numbers and Operations	Measurement	Geometry	Data Analysis, Statistics, and Probability	Algebra and Functions	Estimation	Overall	Numbers and Operations	Measurement	Geometry	Data Analysis, Statistics, and Probability	Algebra and Functions	Estimation
Alabama (AL)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Arizona (AZ)	2	2	2	3	2	2	3	3	3	3	3	3	3	3
Arkansas (AR)	1	1	1	1	1	1	1	1	1	1	1	1	1	2
California (CA)	1	1	1	1	1	1	2	2	2	2	3	2	2	1
Colorado (CO)	■	3	3	■	3	■	■	■	■	■	■	■	■	■
Connecticut (CT)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Delaware (DE)	3	3	3	3	3	3	2	2	3	2	2	2	2	2
District of Columbia (DC)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Florida (FL)	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Georgia (GA)	3	2	2	2	3	3	2	2	2	1	1	2	2	2
Hawaii (HI)	2	2	2	2	2	2	1	1	1	2	2	1	1	1
Idaho (ID)	■	■	■	■	3	3	■	■	■	■	■	■	■	■
Indiana (IN)	■	3	■	■	■	■	3	■	■	■	■	■	3	■
Iowa (IA)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Kentucky (KY)	2	2	2	1	2	2	3	2	2	2	2	2	2	3
Louisiana (LA)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Massachusetts (MA)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Maryland (MD)	3	3	3	3	3	3	2	3	3	3	2	3	3	2
Maine (ME)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Michigan (MI)	3	3	■	3	3	3	3	3	3	■	3	3	3	3
Minnesota (MN)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Mississippi (MS)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Missouri (MO)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Nebraska (NE)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
New Hampshire (NH)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
New Jersey (NJ)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
New Mexico (NM)	2	1	2	3	2	2	2	2	2	2	2	2	2	2
New York (NY)	3	3	3	2	3	3	3	3	3	3	3	3	3	3
North Carolina (NC)	2	2	1	2	2	2	1	1	1	2	2	1	2	1
North Dakota (ND)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Ohio (OH)	3	3	3	3	3	3	3	■	3	3	3	■	3	3
Oklahoma (OK)	3	■	3	3	■	■	■	3	3	3	■	3	■	■
Pennsylvania (PA)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Rhode Island (RI)	2	3	2	2	2	2	3	3	3	3	3	3	3	3
South Carolina (SC)	1	2	2	2	1	1	1	2	2	2	2	2	2	2
Tennessee (TN)	1	1	1	1	1	1	2	2	2	1	1	2	2	2
Texas (TX)	3	3	3	3	3	3	2	3	2	3	3	3	3	3
Utah (UT)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Virginia (VA)	3	■	3	3	■	3	3	3	■	3	3	3	■	3
West Virginia (WV)	2	2	3	2	2	2	3	2	2	2	2	2	1	2
Wisconsin (WI)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Wyoming (WY)	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Guam (GU)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Virgin Islands (VI)	NA	NA	NA	NA	NA	NA	NA	1	1	1	1	1	1	1

Quintiles of Performance

bottom 20 percent				top 20 percent
1	2	3	4	5
1st	2nd	3rd	4th	5th

lower ← proficiency → higher

States categorized in the bottom 20 percent of performance have average mathematics proficiencies in the lowest fifth of the average mathematics proficiency distribution of all states and are indicated by the number 1 (first quintile). States with average proficiencies in the top 20 percent of the distribution are indicated by the number 5 (fifth quintile). The numbers 2, 3, and 4 indicate states with average proficiencies in the second, third, and fourth fifths of the distribution.

NA Grade 4 data for the Virgin Islands are not available.

The following sections describe the results for top-performing states and territories, content area by content area. The analysis considers the cluster of states relative to their overall mathematics proficiency as shown in FIGURES 1.5 and 1.6. Also, at the eighth grade, trends from 1990 to 1992 will be discussed. For reference purposes, the clusters of states with the highest overall average mathematics proficiency at grades 4 and 8 are shown below.

Top-Performing States in Overall Mathematics Proficiency (from Figures 1.5 and 1.6)

Grade 4	Maine, Iowa, New Hampshire, Wisconsin, North Dakota, Minnesota, New Jersey, Connecticut, Massachusetts, Nebraska
Grade 8	Iowa, North Dakota, Minnesota, Maine, New Hampshire, Wisconsin, Nebraska

State Performance in Numbers and Operations

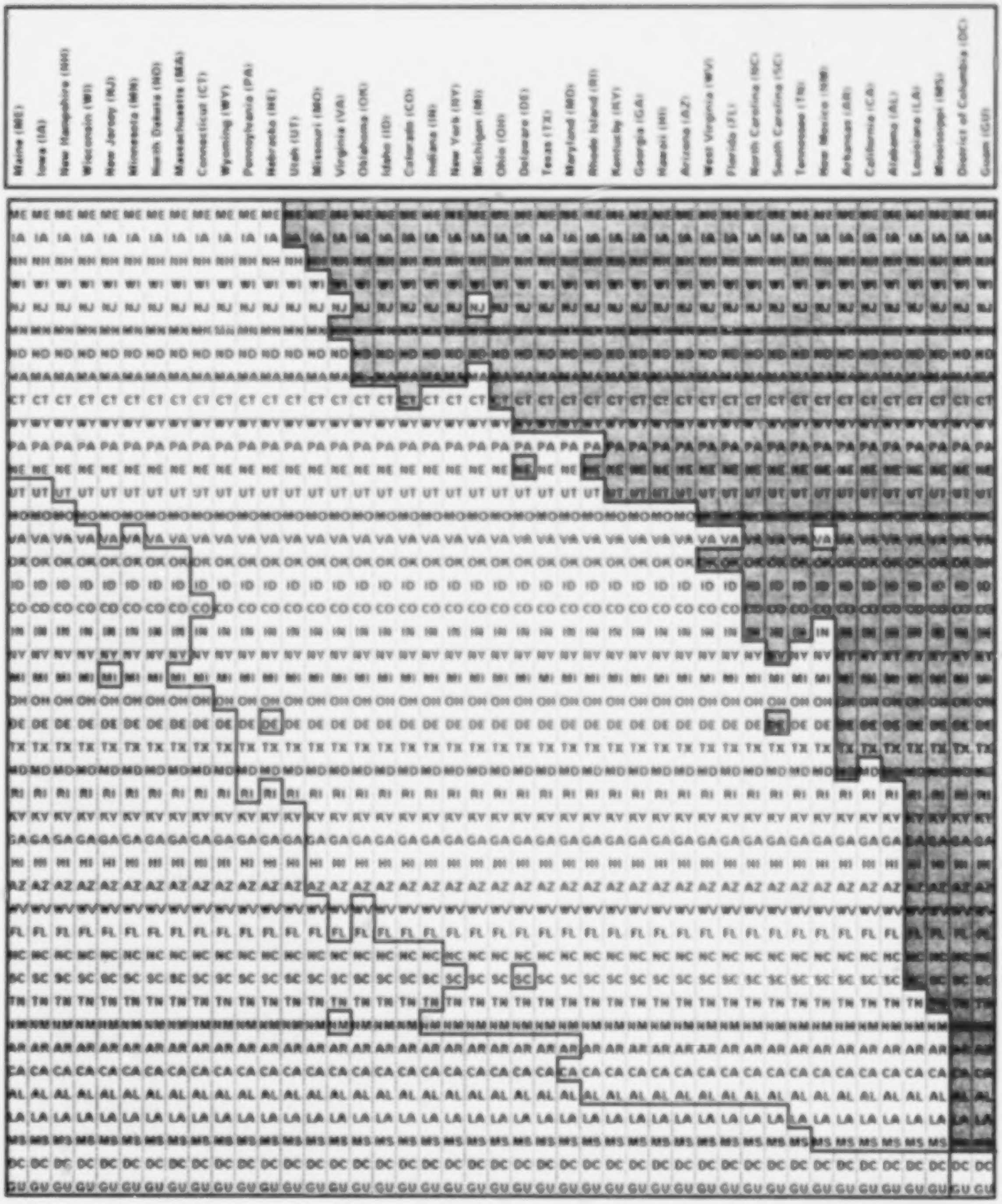
The state-by-state comparisons for average proficiency in numbers and operations at grade 4 are shown in FIGURE 3.4. In general, average proficiency for the participating states and territories is relatively the same in numbers and operations as for overall mathematics proficiency. However, the highest performing cluster increased from 10 states overall to 12 states for numbers and operations, with the inclusion of Wyoming and Pennsylvania.

FIGURE 3.5 shows the same information for numbers and operations for students in grade 8. Here again, the picture is essentially the same as for overall mathematics proficiency. The states cluster in essentially the same groups. This is easily seen when FIGURE 1.6 is overlaid on FIGURE 3.5. North Dakota, Iowa, Minnesota, Wisconsin, and Maine are the five states comprising the top-performing cluster for numbers and operations (but not including New Hampshire and Nebraska as in FIGURE 1.6).

TABLE 3.7 presents the percentiles for numbers and operations across jurisdictions for the 1992 Trial State Assessment Program. The trends for grade 8 indicate that the participants with significant increases in average proficiency in numbers in operations included Colorado, the District of Columbia, Hawaii, Kentucky, New Hampshire, New Mexico, New York, North Carolina, and Rhode Island. Also, several states showed improvement at specific percentiles.

FIGURE 3.4 | Comparisons of Numbers and Operations Average Proficiency 1992 Grade 4

INSTRUCTIONS: Read *down* the column directly under a state name listed in the heading at the top of the chart. Match the shading intensity surrounding a state postal abbreviation to the key below to determine whether the average mathematics performance of this state is higher than, the same as, or lower than the state in the column heading.


Maine (ME)
Iowa (IA)
New Hampshire (NH)
Wisconsin (WI)
New Jersey (NJ)
Minnesota (MN)
North Dakota (ND)
Massachusetts (MA)
Connecticut (CT)
Wyoming (WY)
Pennsylvania (PA)
Nebraska (NE)
Utah (UT)
Missouri (MO)
Virginia (VA)
Oklahoma (OK)
Idaho (ID)
Colorado (CO)
Indiana (IN)
New York (NY)
Michigan (MI)
Ohio (OH)
Delaware (DE)
Texas (TX)
Maryland (MD)
Rhode Island (RI)
Kentucky (KY)
Georgia (GA)
Hawaii (HI)
Arizona (AZ)
West Virginia (WV)
Florida (FL)
North Carolina (NC)
South Carolina (SC)
Tennessee (TN)
New Mexico (NM)
Arkansas (AR)
California (CA)
Alabama (AL)
Louisiana (LA)
Mississippi (MS)
District of Columbia (DC)
Guam (GU)
ME IA NH WI NJ MN ND MA CT WY PA NE UT MO VA OK ID CO IN NY MI OH DE TX MD RI KY GA HI AZ WV FL NC SC TN NM AR CA AL LA MS DC GU

▨ State has statistically significantly higher average proficiency than the state listed at the top of the chart.

☐ No statistically significant difference from the state listed at the top of the chart.

☐ State has statistically significantly lower average proficiency than the state listed at the top of the chart.

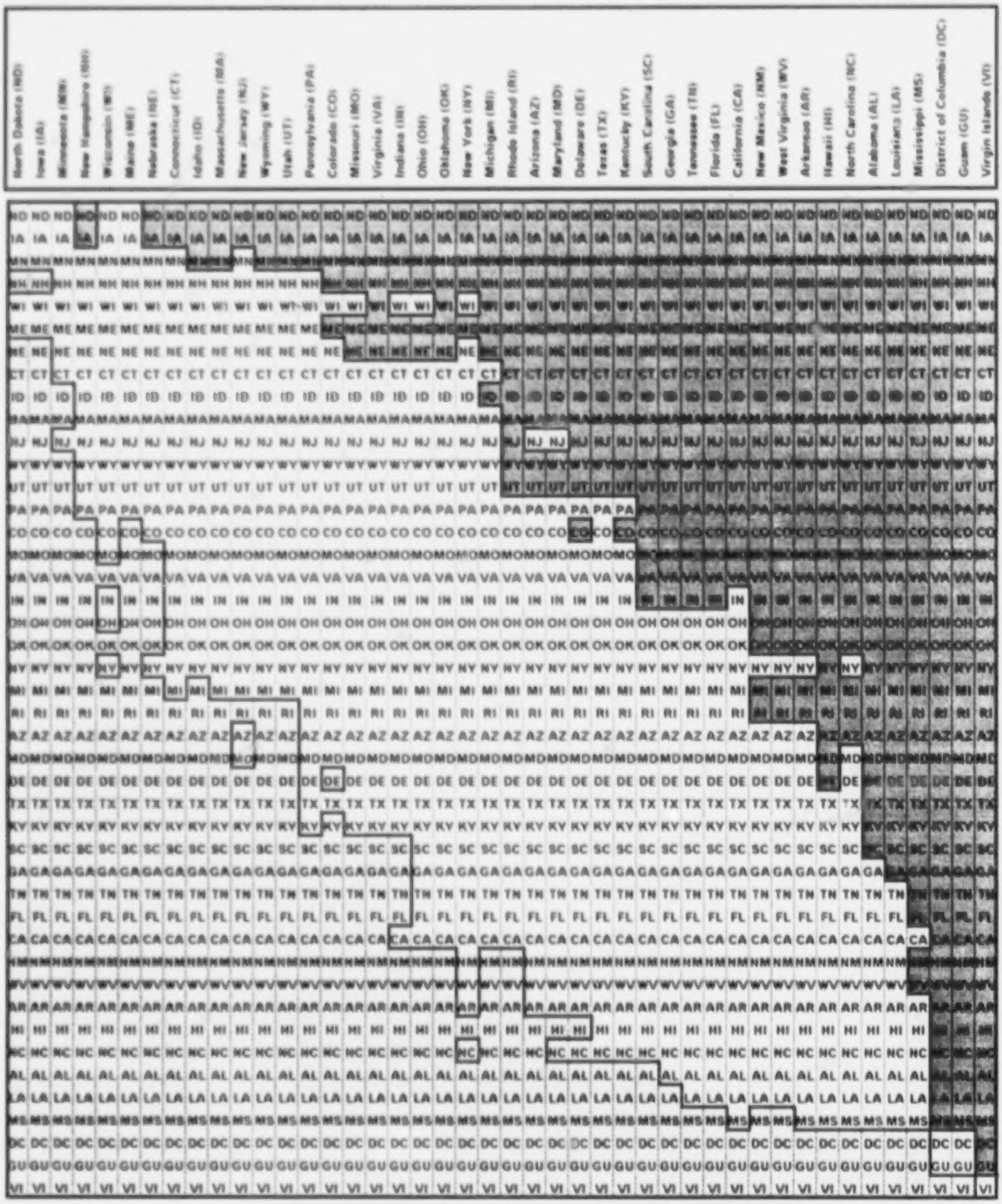
The between state comparisons take into account sampling and measurement error and that each state is being compared with every other state. Significance is determined by an application of the Bonferroni procedure based on 946 comparisons by comparing the difference between the two means with four times the square root of the sum of the squared standard errors.

FIGURE 3.5

Comparisons of Numbers and Operations Average Proficiency 1992 Grade 8

THE NATION'S REPORT CARD naep

INSTRUCTIONS: Read *down* the column directly under a state name listed in the heading at the top of the chart. Match the shading intensity surrounding a state postal abbreviation to the key below to determine whether the average mathematics performance of this state is higher than, the same as, or lower than the state in the column heading.


North Dakota (ND)
Iowa (IA)
Minnesota (MN)
New Hampshire (NH)
Wisconsin (WI)
Maine (ME)
Nebraska (NE)
Connecticut (CT)
Idaho (ID)
Massachusetts (MA)
New Jersey (NJ)
Wyoming (WY)
Utah (UT)
Pennsylvania (PA)
Colorado (CO)
Missouri (MO)
Virginia (VA)
Indiana (IN)
Ohio (OH)
Oklahoma (OK)
New York (NY)
Michigan (MI)
Rhode Island (RI)
Arizona (AZ)
Maryland (MD)
Delaware (DE)
Texas (TX)
Kentucky (KY)
South Carolina (SC)
Georgia (GA)
Tennessee (TN)
Florida (FL)
California (CA)
New Mexico (NM)
West Virginia (WV)
Arkansas (AR)
Hawaii (HI)
North Carolina (NC)
Alabama (AL)
Louisiana (LA)
Mississippi (MS)
District of Columbia (DC)
Guam (GU)
Virgin Islands (VI)

▨ State has statistically significantly higher average proficiency than the state listed at the top of the chart.

☐ No statistically significant difference from the state listed at the top of the chart.

☐ State has statistically significantly lower average proficiency than the state listed at the top of the chart.

The between state comparisons take into account sampling and measurement error and that each state is being compared with every other state. Significance is determined by an application of the Bonferroni procedure based on 946 comparisons by comparing the difference between the two means with four times the square root of the sum of the squared standard errors.

TABLE 3.7 | Percentiles of Proficiency in Numbers and Operations

PUBLIC SCHOOLS	Grade 4 - 1992							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	214 (0.9)	154 (1.3)	168 (1.2)	191 (1.2)	215 (1.1)	239 (0.9)	259 (1.4)	270 (1.8)
Northeast	220 (2.2)	157 (5.3)	172 (2.5)	196 (2.9)	222 (3.4)	246 (2.7)	265 (2.9)	277 (4.4)
Southeast	205 (2.0)	148 (1.6)	159 (2.7)	182 (2.5)	206 (2.5)	228 (2.0)	249 (3.0)	261 (4.8)
Central	219 (2.3)	163 (3.3)	176 (3.4)	197 (3.0)	220 (3.7)	241 (1.3)	260 (1.5)	271 (3.4)
West	214 (1.8)	155 (2.5)	167 (2.2)	190 (2.0)	216 (2.4)	238 (2.7)	258 (3.1)	270 (3.3)
STATES								
Alabama	204 (1.8)	146 (2.6)	158 (3.6)	179 (2.1)	204 (2.6)	229 (2.1)	249 (2.2)	260 (2.4)
Arizona	210 (1.4)	152 (1.7)	164 (1.9)	187 (1.8)	212 (1.6)	234 (1.6)	254 (2.1)	265 (1.4)
Arkansas	205 (1.1)	147 (2.8)	160 (1.8)	182 (2.0)	206 (1.4)	229 (1.6)	249 (1.2)	260 (1.7)
California	204 (1.8)	138 (1.6)	153 (2.8)	178 (1.6)	206 (2.5)	231 (2.4)	253 (2.4)	265 (2.8)
Colorado	216 (1.1)	158 (3.4)	172 (2.5)	193 (1.4)	217 (1.2)	239 (1.4)	258 (1.2)	270 (1.9)
Connecticut	223 (1.3)	164 (3.7)	177 (1.6)	200 (1.0)	224 (1.9)	247 (1.3)	267 (1.5)	278 (2.5)
Delaware	214 (0.9)	156 (2.6)	168 (1.4)	190 (1.0)	214 (1.1)	239 (1.2)	261 (2.5)	273 (2.6)
Dist. Columbia	189 (0.7)	134 (1.6)	146 (0.9)	166 (0.8)	187 (0.9)	210 (1.2)	234 (2.0)	251 (3.1)
Florida	208 (1.6)	148 (3.7)	162 (2.1)	185 (2.3)	210 (2.0)	232 (1.8)	253 (1.8)	264 (3.2)
Georgia	211 (1.3)	150 (2.4)	163 (2.1)	186 (1.2)	212 (1.6)	236 (3.4)	257 (2.2)	268 (1.3)
Hawaii	211 (1.4)	148 (2.5)	162 (2.8)	185 (1.6)	212 (2.1)	236 (1.0)	257 (1.3)	268 (2.0)
Idaho	216 (1.3)	163 (4.0)	175 (1.9)	196 (1.3)	218 (1.4)	238 (1.1)	255 (1.9)	265 (1.8)
Indiana	216 (1.3)	165 (4.0)	175 (2.4)	194 (1.7)	216 (1.2)	237 (1.2)	256 (2.0)	268 (2.7)
Iowa	227 (1.3)	172 (2.7)	185 (1.6)	206 (1.7)	228 (1.1)	250 (1.2)	267 (1.3)	277 (1.9)
Kentucky	211 (1.2)	158 (2.2)	170 (2.3)	189 (1.3)	211 (0.9)	233 (1.6)	254 (3.2)	266 (1.7)
Louisiana	199 (1.5)	142 (2.9)	154 (2.3)	176 (2.0)	200 (1.8)	223 (2.3)	244 (1.5)	256 (2.1)
Maine	227 (1.4)	176 (3.1)	188 (1.8)	207 (1.2)	228 (1.8)	248 (2.2)	264 (2.0)	274 (3.0)
Maryland	214 (1.4)	150 (2.0)	163 (1.6)	187 (2.0)	215 (1.1)	241 (1.0)	262 (1.6)	274 (1.4)
Massachusetts	224 (1.2)	167 (2.0)	180 (2.2)	202 (1.6)	225 (1.4)	246 (1.7)	265 (2.4)	275 (1.0)
Michigan	215 (1.9)	151 (4.5)	167 (2.9)	192 (2.1)	217 (1.6)	241 (1.7)	259 (2.8)	270 (2.9)
Minnesota	225 (1.2)	164 (1.9)	179 (1.9)	203 (2.0)	227 (1.3)	249 (1.2)	267 (1.4)	278 (1.4)
Mississippi	198 (1.3)	141 (2.7)	154 (2.9)	175 (1.8)	199 (1.5)	223 (1.3)	242 (2.1)	254 (2.0)
Missouri	217 (1.4)	162 (2.8)	175 (2.1)	195 (2.4)	218 (1.6)	241 (1.3)	260 (1.7)	270 (2.8)
Nebraska	221 (1.5)	165 (2.1)	177 (1.7)	199 (2.3)	223 (1.2)	244 (2.0)	263 (2.2)	273 (1.1)
New Hampshire	225 (1.3)	172 (3.3)	185 (1.6)	205 (1.6)	226 (1.8)	248 (1.8)	265 (1.8)	276 (2.0)
New Jersey	225 (1.6)	167 (3.2)	181 (2.8)	203 (2.3)	227 (1.9)	248 (1.4)	266 (1.8)	276 (1.8)
New Mexico	207 (1.8)	149 (2.5)	162 (1.7)	183 (2.3)	208 (2.0)	231 (2.2)	252 (2.1)	265 (3.0)
New York	215 (1.4)	154 (2.1)	169 (3.1)	192 (1.3)	216 (1.7)	239 (1.8)	259 (1.4)	271 (1.6)
North Carolina	208 (1.3)	147 (1.6)	160 (1.5)	182 (1.3)	210 (1.8)	234 (1.1)	254 (1.5)	267 (2.2)
North Dakota	224 (0.9)	173 (1.8)	185 (1.8)	204 (1.3)	225 (1.1)	245 (1.0)	262 (2.0)	271 (1.7)
Ohio	214 (1.4)	157 (1.8)	170 (2.6)	191 (1.0)	215 (1.6)	238 (1.5)	258 (1.8)	270 (2.0)
Oklahoma	216 (1.1)	166 (2.1)	178 (1.1)	196 (1.7)	217 (1.3)	237 (1.5)	255 (1.5)	265 (1.5)
Pennsylvania	221 (1.6)	163 (2.9)	176 (2.0)	199 (1.9)	223 (2.1)	245 (1.7)	263 (1.7)	273 (3.1)
Rhode Island	212 (1.7)	154 (3.8)	168 (1.8)	190 (2.6)	214 (1.7)	235 (1.9)	254 (2.3)	265 (3.1)
South Carolina	208 (1.2)	151 (2.2)	164 (1.9)	184 (1.0)	208 (1.9)	232 (1.7)	253 (2.1)	264 (1.9)
Tennessee	207 (1.5)	151 (1.9)	163 (2.3)	184 (1.9)	208 (2.1)	231 (1.7)	250 (1.6)	261 (2.4)
Texas	214 (1.4)	157 (1.4)	170 (2.2)	191 (1.7)	214 (1.8)	237 (1.5)	257 (2.1)	270 (2.1)
Utah	219 (1.2)	164 (2.2)	177 (2.1)	198 (1.8)	221 (1.3)	241 (1.3)	260 (1.5)	270 (1.0)
Virginia	217 (1.6)	159 (1.6)	171 (2.6)	193 (2.4)	217 (1.9)	241 (1.6)	262 (2.7)	274 (3.0)
West Virginia	210 (1.2)	153 (1.6)	166 (1.2)	187 (1.1)	210 (1.1)	233 (1.8)	253 (2.0)	266 (2.5)
Wisconsin	225 (1.3)	169 (2.4)	182 (2.4)	203 (1.3)	227 (1.6)	248 (1.3)	266 (1.5)	276 (2.2)
Wyoming	221 (1.1)	169 (3.0)	182 (1.5)	202 (1.2)	222 (1.5)	242 (1.1)	259 (1.6)	268 (1.0)
TERRITORY								
Guam	188 (1.1)	125 (2.8)	138 (1.8)	162 (1.3)	188 (1.5)	214 (1.7)	236 (2.5)	250 (2.0)

The standard errors of the estimated proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample.

TABLE 3.7 | Percentiles of Proficiency in Numbers and Operations (continued)

PUBLIC SCHOOLS	Grade 8 - 1992							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	270 (0.9)	211 (1.5)	223 (0.8)	246 (0.9)	271 (1.3)	295 (1.0)	315 (1.4)	326 (1.5)
Northeast	271 (2.7)	211 (4.1)	223 (1.7)	246 (2.9)	270 (3.7)	297 (3.4)	319 (2.5)	330 (2.4)
Southeast	263 (1.2)	207 (1.9)	219 (2.2)	239 (1.5)	264 (1.8)	287 (1.7)	306 (1.5)	316 (3.6)
Central	277 (2.2)	218 (3.8)	232 (2.1)	255 (2.8)	279 (3.3)	300 (1.7)	317 (2.1)	327 (2.2)
West	270 (1.8)	209 (2.5)	223 (2.3)	246 (2.4)	271 (2.1)	295 (1.2)	316 (2.8)	328 (3.0)
STATES								
Alabama	258 (1.4)	202 (2.0)	215 (1.4)	235 (1.7)	258 (1.8)	282 (1.9)	303 (2.0)	315 (2.8)
Arizona	269 (1.2)	215 (3.0)	227 (1.5)	247 (1.6)	269 (1.2)	291 (1.3)	310 (1.1)	322 (1.9)
Arkansas	262 (1.3)	205 (2.7)	218 (1.8)	240 (1.7)	263 (1.5)	285 (1.2)	304 (1.1)	316 (2.8)
California	263 (1.7)	197 (3.7)	211 (1.7)	236 (2.3)	265 (2.3)	292 (1.4)	313 (2.0)	326 (4.1)
Colorado	273 (1.1) >	215 (2.3)	229 (1.7)	252 (2.1)	275 (1.3)	297 (1.6)	314 (1.3)	324 (1.5)
Connecticut	277 (1.3)	216 (5.1)	231 (2.6)	255 (1.8)	279 (0.9) >	302 (1.7)	320 (1.6)	329 (2.0)
Delaware	267 (1.0)	209 (2.8)	223 (2.7)	245 (1.3)	267 (1.3)	290 (1.8)	310 (2.1)	322 (1.8)
Dist. Columbia	243 (0.8) >	186 (1.7)	199 (0.9)	218 (1.1)	242 (1.1)	267 (1.6) »	287 (1.2) >	301 (3.0)
Florida	264 (1.4)	203 (0.9)	216 (2.8)	239 (1.7)	265 (1.1) >	290 (1.6) >	310 (1.6)	321 (1.5)
Georgia	265 (1.1)	210 (2.6)	222 (1.6)	241 (1.1)	265 (1.4)	288 (1.4)	307 (2.1)	318 (1.8)
Hawaii	261 (0.9) »	199 (4.4)	213 (2.2)	236 (1.1) »	262 (1.3)	287 (1.9)	308 (1.1)	319 (2.1)
Idaho	277 (0.8)	226 (2.7)	238 (1.3)	258 (0.7)	278 (1.1)	297 (1.2)	314 (1.6)	323 (1.8)
Indiana	272 (1.3)	218 (2.2)	230 (2.8)	251 (1.3)	272 (1.7)	294 (1.6)	313 (2.6)	324 (1.5)
Iowa	285 (1.0)	237 (1.1)	249 (1.5)	266 (1.2)	286 (0.9)	305 (1.2)	321 (1.2)	329 (1.6)
Kentucky	266 (1.1) >	210 (1.7)	222 (1.7)	243 (0.9)	267 (1.4) >	289 (1.4)	309 (2.0)	322 (2.1)
Louisiana	256 (1.6)	200 (2.8)	213 (1.9)	235 (2.2)	257 (1.8)	279 (2.1)	298 (2.2)	309 (2.0)
Maine	280 (1.2)	228 (3.4)	241 (1.7)	261 (1.4)	281 (1.1)	300 (1.6)	317 (1.5)	327 (1.6)
Maryland	269 (1.3)	206 (2.4)	219 (1.6)	243 (1.5)	270 (1.2)	296 (1.6)	314 (1.9)	326 (1.5)
Massachusetts	276 (1.0)	222 (1.4)	234 (1.9)	254 (1.4)	277 (1.3)	300 (1.4)	317 (1.2)	327 (2.2)
Michigan	270 (1.3)	212 (1.7)	226 (1.8)	247 (1.4)	271 (1.5)	294 (1.4)	313 (1.7)	324 (2.5)
Minnesota	282 (1.1)	233 (1.9) >	244 (1.6)	263 (1.3)	284 (1.7)	303 (1.1)	319 (2.0)	329 (1.8)
Mississippi	256 (1.2)	203 (2.8)	215 (1.6)	234 (1.9)	256 (1.2)	279 (1.4)	297 (2.0)	308 (0.7)
Missouri	272 (1.3)	217 (3.5)	229 (2.8)	251 (1.9)	275 (1.3)	295 (1.3)	313 (1.6)	323 (2.6)
Nebraska	279 (1.1)	223 (1.2)	238 (2.2)	260 (1.3)	282 (1.5)	301 (1.7)	317 (1.9)	326 (2.3)
New Hampshire	280 (0.9) »	228 (0.9)	240 (1.1)	260 (1.0) >	281 (0.8) »	301 (1.3)	319 (1.7)	328 (3.3)
New Jersey	276 (1.6)	217 (3.7)	231 (2.6)	254 (2.0)	277 (2.3)	300 (2.0)	320 (2.1)	330 (2.0)
New Mexico	263 (1.0) >	207 (2.1)	220 (2.3)	241 (1.2)	263 (1.4)	286 (1.1)	305 (1.5)	316 (2.3)
New York	270 (1.9) >	204 (5.8)	220 (3.6)	247 (2.8)	273 (2.5)	297 (1.3) »	317 (1.9)	329 (2.0)
North Carolina	261 (1.3) >	202 (4.1)	216 (1.8)	237 (1.4)	262 (1.8)	286 (1.6) >	306 (2.2)	317 (2.3)
North Dakota	286 (1.2)	238 (2.4)	250 (1.8)	268 (1.3)	287 (1.2)	305 (1.3)	320 (1.4)	329 (1.5)
Ohio	272 (1.5)	213 (3.1)	227 (3.4)	249 (2.3)	273 (1.5)	295 (1.5)	314 (1.8)	325 (1.8)
Oklahoma	271 (1.3)	215 (2.8)	230 (1.7)	251 (2.4)	273 (1.6)	294 (1.2)	311 (1.9)	320 (1.9)
Pennsylvania	274 (1.6)	219 (4.5)	231 (2.3)	252 (1.5)	275 (1.8)	296 (1.5)	315 (2.4)	324 (1.6)
Rhode Island	269 (0.7) »	213 (3.1)	226 (1.5) »	248 (1.7) >	271 (1.5) >	293 (1.5)	310 (1.5)	320 (1.5)
South Carolina	265 (1.0)	211 (2.4)	222 (2.0)	242 (1.7)	265 (1.0)	289 (0.9)	309 (1.4)	321 (1.3)
Tennessee	264 (1.3)	209 (2.7)	222 (1.7)	242 (1.6)	265 (1.9)	288 (1.7)	306 (1.6)	316 (2.0)
Texas	267 (1.4)	207 (2.4)	220 (2.4)	241 (1.4)	267 (1.5)	292 (1.8)	313 (1.9)	326 (2.4)
Utah	276 (0.8)	221 (2.9)	234 (2.6)	255 (0.9)	278 (1.4)	299 (1.3)	315 (1.9)	325 (1.4)
Virginia	272 (1.1)	216 (1.9)	229 (2.0)	249 (1.4) >	273 (1.2)	296 (1.2)	315 (1.6)	326 (1.5)
West Virginia	263 (1.0)	211 (1.5)	223 (1.1)	241 (1.3)	263 (1.1)	285 (1.2)	302 (1.3)	312 (1.2)
Wisconsin	280 (1.5)	225 (2.7)	238 (2.1)	260 (1.5)	281 (1.5)	301 (1.4)	319 (1.5)	328 (1.2)
Wyoming	276 (0.8)	226 (1.5)	238 (1.1)	256 (1.2)	277 (1.3)	297 (1.1)	313 (1.4)	323 (1.6)
TERRITORIES								
Guam	240 (1.3)	174 (3.0)	187 (2.8)	211 (1.6)	239 (2.1)	268 (1.6)	293 (1.5)	306 (2.1)
Virgin Islands	231 (1.0)	180 (1.4)	190 (1.5)	209 (1.7)	232 (1.7)	253 (1.3)	272 (1.7)	283 (1.6)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

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TABLE 3.7 | Percentiles of Proficiency in Numbers and Operations (continued)

PUBLIC SCHOOLS	Grade 8 - 1990							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	266 (1.3)	206 (2.3)	220 (2.4)	242 (2.3)	267 (1.2)	291 (1.4)	309 (1.3)	320 (1.9)
Northeast	272 (2.9)	216 (9.3)	231 (3.0)	250 (4.1)	273 (4.0)	297 (3.2)	313 (4.4)	323 (3.7)
Southeast	260 (2.8)	200(10.7)	214 (3.6)	234 (5.9)	260 (2.9)	286 (3.2)	305 (4.3)	318 (2.7)
Central	270 (2.0)	214 (5.5)	226 (4.4)	248 (5.4)	272 (5.9)	293 (1.7)	309 (2.1)	319 (3.6)
West	263 (2.5)	203 (3.0)	217 (4.8)	239 (1.9)	264 (2.3)	288 (3.0)	310 (4.9)	322 (4.3)
STATES								
Alabama	259 (1.1)	204 (2.2)	216 (2.2)	236 (2.3)	259 (1.2)	282 (1.8)	302 (2.1)	314 (2.6)
Arizona	265 (1.3)	207 (2.6)	220 (2.5)	242 (1.5)	265 (1.9)	288 (1.5)	308 (1.7)	319 (2.7)
Arkansas	262 (0.8)	210 (1.6)	222 (1.5)	242 (0.7)	263 (1.0)	284 (1.0)	303 (1.0)	313 (1.9)
California	260 (1.3)	197 (2.9)	211 (1.5)	234 (2.1)	260 (1.6)	286 (2.1)	308 (1.8)	320 (1.7)
Colorado	269 (1.0)	213 (0.9)	226 (1.4)	248 (1.2)	270 (1.5)	292 (1.4)	311 (1.7)	322 (1.4)
Connecticut	274 (1.0)	213 (2.0)	227 (1.4)	250 (1.1)	275 (1.1)	299 (1.1)	318 (1.1)	329 (2.1)
Delaware	265 (0.9)	207 (1.4)	221 (2.3)	241 (2.0)	265 (1.5)	290 (1.9)	311 (1.9)	323 (2.7)
Dist. Columbia	239 (0.9)	189 (2.0)	199 (1.9)	218 (1.5)	238 (0.9)	258 (0.9)	279 (2.3)	292 (2.6)
Florida	260 (1.2)	203 (1.3)	216 (1.5)	237 (1.8)	260 (1.3)	283 (1.1)	306 (2.0)	319 (1.0)
Georgia	263 (1.3)	206 (2.5)	218 (1.0)	239 (1.5)	264 (1.8)	287 (2.3)	308 (1.7)	322 (3.3)
Hawaii	257 (0.7)	194 (1.9)	207 (1.7)	229 (1.2)	257 (1.2)	284 (1.5)	306 (1.4)	319 (1.1)
Idaho	275 (0.8)	222 (1.5)	235 (2.1)	254 (1.5)	276 (1.0)	296 (1.0)	313 (1.2)	322 (1.2)
Indiana	271 (1.1)	217 (2.5)	228 (1.8)	249 (1.3)	271 (1.3)	293 (1.4)	313 (1.4)	325 (2.3)
Iowa	282 (1.0)	232 (1.7)	243 (1.4)	262 (1.4)	283 (1.0)	303 (1.1)	321 (1.5)	331 (1.2)
Kentucky	261 (1.2)	209 (2.1)	221 (2.3)	240 (1.9)	261 (1.5)	283 (1.3)	303 (1.5)	315 (1.5)
Louisiana	253 (1.2)	203 (2.5)	215 (1.6)	233 (1.2)	253 (1.2)	273 (1.6)	293 (2.1)	304 (1.1)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	264 (1.3)	204 (1.2)	217 (1.3)	239 (1.6)	265 (1.3)	290 (2.3)	311 (2.1)	324 (2.5)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	269 (1.2)	212 (1.3)	224 (1.5)	245 (1.1)	269 (1.4)	292 (1.6)	312 (1.7)	325 (1.6)
Minnesota	279 (1.1)	223 (2.2)	237 (1.8)	258 (1.1)	281 (0.8)	301 (1.0)	319 (1.2)	330 (2.2)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	279 (1.0)	223 (2.9)	238 (1.6)	259 (1.9)	281 (1.4)	301 (1.2)	319 (1.8)	329 (1.4)
New Hampshire	275 (0.9)	224 (2.4)	235 (1.6)	254 (1.3)	275 (0.8)	296 (1.2)	314 (2.0)	325 (2.5)
New Jersey	274 (1.2)	217 (2.4)	229 (1.8)	250 (2.2)	274 (2.0)	298 (1.5)	319 (1.6)	331 (1.6)
New Mexico	259 (0.8)	205 (0.9)	217 (1.2)	236 (1.6)	259 (0.9)	281 (1.1)	302 (1.5)	313 (1.1)
New York	264 (1.3)	202 (2.9)	217 (2.7)	240 (3.0)	265 (1.3)	288 (1.5)	309 (1.8)	322 (2.4)
North Carolina	256 (1.1)	201 (1.1)	212 (1.4)	232 (1.7)	256 (1.5)	279 (1.4)	299 (1.2)	310 (2.6)
North Dakota	286 (1.3)	235 (4.0)	248 (1.3)	268 (2.1)	287 (1.7)	306 (1.6)	323 (1.5)	333 (3.0)
Ohio	269 (1.1)	214 (1.4)	226 (2.0)	247 (1.3)	269 (1.3)	291 (1.3)	311 (1.9)	322 (2.5)
Oklahoma	268 (1.3)	214 (2.3)	227 (1.8)	247 (1.2)	268 (1.4)	290 (1.8)	309 (2.3)	319 (3.2)
Pennsylvania	270 (1.7)	215 (2.1)	227 (2.4)	249 (2.3)	271 (2.1)	293 (2.0)	310 (2.0)	321 (1.7)
Rhode Island	264 (0.6)	204 (1.7)	218 (0.8)	240 (0.9)	265 (0.7)	290 (1.1)	310 (0.9)	322 (2.3)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	262 (1.3)	207 (2.4)	219 (2.9)	239 (1.1)	262 (1.6)	286 (1.2)	306 (1.9)	318 (2.6)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	268 (1.4)	212 (1.5)	224 (1.9)	243 (1.2)	267 (1.7)	291 (1.9)	314 (2.4)	329 (3.3)
West Virginia	260 (1.0)	208 (2.0)	220 (1.7)	239 (1.3)	260 (1.1)	281 (1.5)	301 (1.6)	313 (1.7)
Wisconsin	278 (1.4)	223 (2.4)	235 (2.7)	257 (1.6)	279 (1.1)	300 (1.7)	318 (1.8)	329 (1.3)
Wyoming	275 (0.7)	225 (1.9)	237 (1.8)	256 (1.1)	276 (1.0)	295 (0.9)	312 (1.2)	323 (2.7)
TERRITORIES								
Guam	240 (0.7)	182 (1.3)	194 (1.4)	215 (1.1)	239 (1.0)	265 (1.2)	288 (2.2)	301 (0.8)
Virgin Islands	229 (1.0)	181 (2.0)	190 (2.0)	209 (1.1)	228 (1.6)	248 (1.4)	266 (2.2)	278 (3.4)

(xxx) Did not participate in the 1990 Trial State Assessment.

State Performance in Measurement

FIGURE 3.6 shows the state-by-state comparative performance in measurement at grade 4 in 1992. Again, the states in the top grouping remained fairly stable, with the group of high-performing states in average measurement growing from 10 states overall to 13 states. States moving into the top group for measurement were Wyoming, Utah, and Pennsylvania.

FIGURE 3.7 shows comparative information about average proficiency in measurement for grade 8 at the state level in 1992. The picture is very similar to the overall mathematics proficiency information. The top seven states are the same seven states that formed the top group in overall mathematics proficiency.

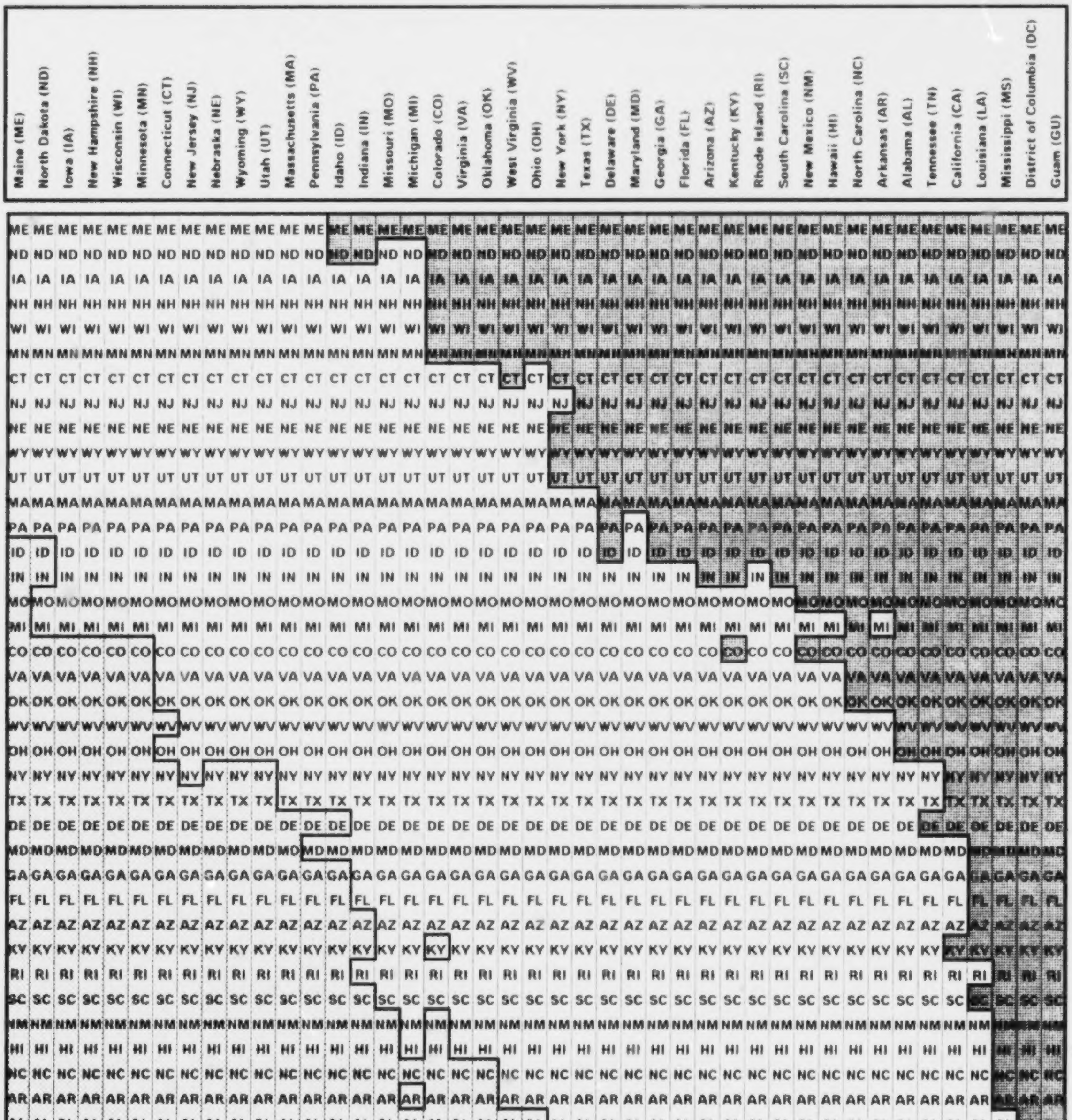
TABLE 3.8 contains the data showing the percentiles for measurement. Across the participating jurisdictions at grade 8, California, Colorado, Connecticut, Hawaii, Idaho, Iowa, Kentucky, Minnesota, New Hampshire, North Carolina, Oklahoma, Rhode Island, Texas, and Wyoming had significantly higher average proficiency in measurement in 1992 than in 1990. There were numerous improvements across the percentiles, with Iowa, Minnesota, and North Carolina showing improvement at five of the percentiles shown.

FIGURE 3.6

Comparisons of Measurement Average Proficiency
1992 Grade 4

THE NATION'S REPORT CARD

INSTRUCTIONS: Read *down* the column directly under a state name listed in the heading at the top of the chart. Match the shading intensity surrounding a state postal abbreviation to the key below to determine whether the average mathematics performance of this state is higher than, the same as, or lower than the state in the column heading.



▩ State has statistically significantly higher average proficiency than the state listed at the top of the chart.

☐ No statistically significant difference from the state listed at the top of the chart.

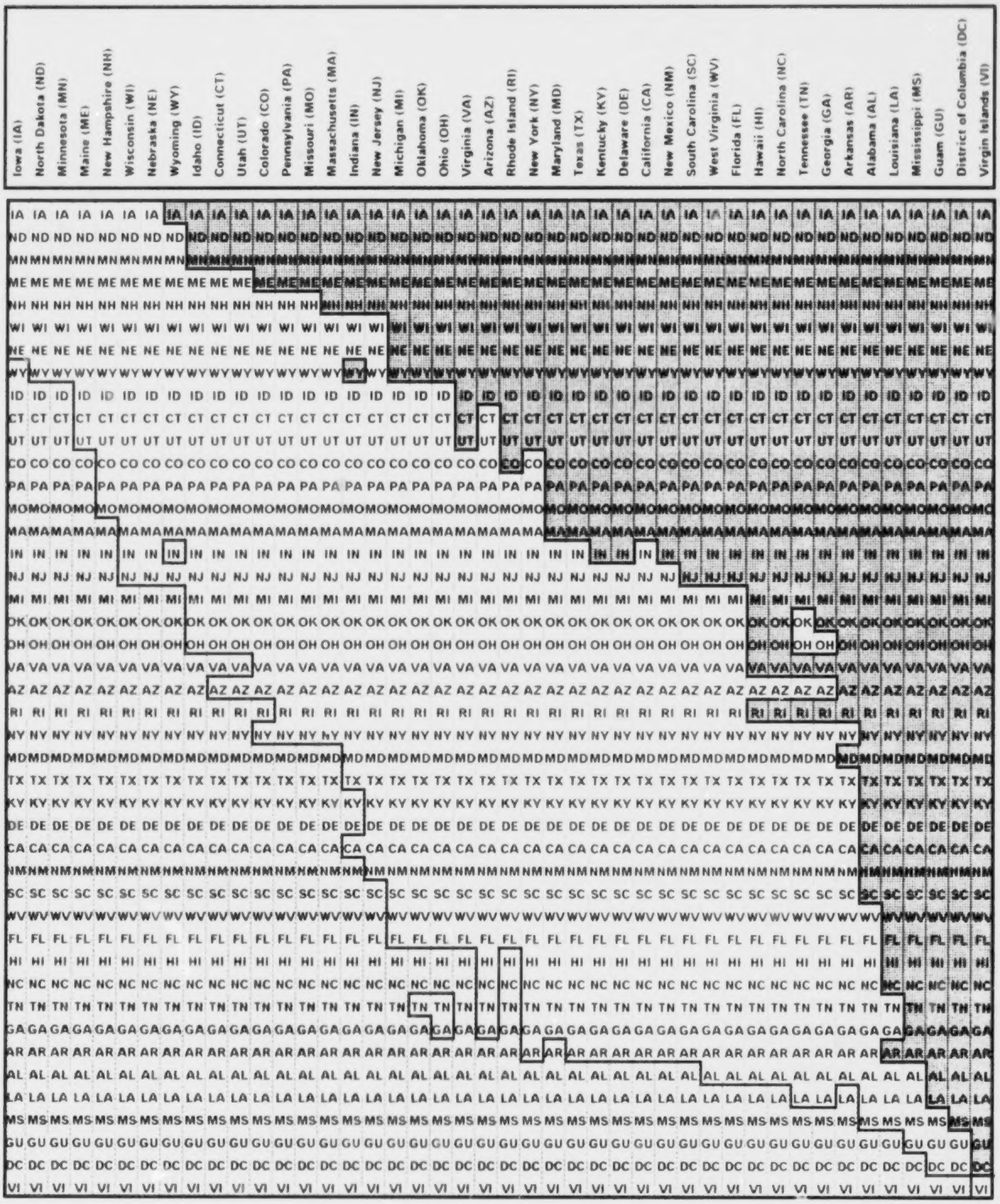
☐ State has statistically significantly lower average proficiency than the state listed at the top of the chart.

The between state comparisons take into account sampling and measurement error and that each state is being compared with every other state. Significance is determined by an application of the Bonferroni procedure based on 946 comparisons by comparing the difference between the two means with four times the square root of the sum of the squared standard errors.

FIGURE 3.7

Comparisons of Measurement Average Proficiency 1992 Grade 8

INSTRUCTIONS: Read *down* the column directly under a state name listed in the heading at the top of the chart. Match the shading intensity surrounding a state postal abbreviation to the key below to determine whether the average mathematics performance of this state is higher than, the same as, or lower than the state in the column heading.



▨ State has statistically significantly higher average proficiency than the state listed at the top of the chart.

☐ No statistically significant difference from the state listed at the top of the chart.

☐ State has statistically significantly lower average proficiency than the state listed at the top of the chart.

The between state comparisons take into account sampling and measurement error and that each state is being compared with every other state. Significance is determined by an application of the Bonferroni procedure based on 946 comparisons by comparing the difference between the two means with four times the square root of the sum of the squared standard errors.

TABLE 3.8 | Percentiles of Proficiency in Measurement

PUBLIC SCHOOLS	Grade 4 - 1992							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	222 (0.9)	162 (1.8)	176 (1.3)	199 (1.1)	224 (0.9)	247 (1.6)	266 (1.3)	277 (1.4)
Northeast	227 (2.3)	166 (2.9)	181 (3.1)	203 (3.2)	229 (3.5)	252 (3.0)	271 (3.6)	281 (3.0)
Southeast	214 (2.1)	155 (4.0)	169 (2.8)	191 (1.7)	215 (2.4)	237 (1.9)	257 (3.1)	269 (3.6)
Central	228 (2.4)	169 (3.7)	184 (4.6)	208 (4.4)	230 (2.3)	251 (2.0)	269 (2.6)	280 (2.6)
West	221 (1.6)	160 (4.3)	173 (2.4)	198 (1.9)	223 (2.1)	245 (2.0)	265 (2.6)	276 (2.6)
STATES								
Alabama	213 (1.7)	157 (2.1)	169 (1.7)	190 (1.4)	213 (2.0)	237 (2.4)	258 (2.3)	268 (2.3)
Arizona	219 (1.3)	161 (3.7)	174 (1.7)	196 (1.9)	220 (1.3)	242 (1.5)	262 (1.6)	272 (2.4)
Arkansas	215 (1.7)	161 (2.1)	173 (3.2)	193 (2.3)	216 (2.1)	237 (2.0)	255 (1.8)	265 (1.4)
California	210 (1.8)	140 (3.1)	156 (3.7)	183 (2.7)	212 (2.0)	237 (2.3)	260 (2.1)	273 (2.6)
Colorado	225 (1.2)	167 (3.8)	181 (1.8)	203 (2.0)	227 (1.5)	249 (1.0)	267 (1.5)	279 (1.5)
Connecticut	230 (1.2)	171 (2.4)	185 (2.8)	208 (1.3)	232 (0.8)	255 (1.4)	273 (1.9)	284 (1.3)
Delaware	220 (0.9)	163 (1.9)	175 (2.1)	197 (1.2)	221 (1.3)	244 (1.0)	265 (2.0)	276 (2.2)
Dist. Columbia	193 (0.9)	139 (1.8)	150 (2.1)	169 (1.6)	191 (1.1)	214 (0.8)	237 (2.2)	254 (2.2)
Florida	219 (1.8)	159 (3.2)	173 (3.2)	196 (1.8)	220 (1.8)	243 (2.4)	263 (2.5)	275 (3.3)
Georgia	219 (1.5)	163 (2.1)	175 (2.1)	196 (1.6)	220 (1.2)	242 (2.0)	263 (2.6)	274 (2.1)
Hawaii	216 (1.7)	154 (2.6)	168 (3.6)	192 (1.7)	217 (1.5)	241 (1.4)	262 (1.7)	274 (3.2)
Idaho	227 (1.0)	175 (2.4)	187 (1.6)	208 (1.5)	229 (1.0)	249 (0.9)	265 (1.2)	275 (1.8)
Indiana	226 (1.4)	177 (2.6)	188 (2.0)	206 (1.8)	226 (2.0)	247 (1.8)	265 (1.8)	275 (2.3)
Iowa	234 (1.4)	179 (2.4)	194 (1.4)	215 (1.5)	235 (1.7)	257 (1.4)	274 (1.4)	284 (1.8)
Kentucky	218 (1.1)	166 (2.0)	178 (2.5)	197 (1.6)	218 (1.2)	240 (1.3)	259 (1.6)	270 (1.7)
Louisiana	208 (1.6)	150 (2.7)	164 (2.0)	185 (2.1)	209 (1.6)	233 (2.3)	253 (1.9)	264 (1.6)
Maine	236 (1.4)	183 (1.9)	195 (2.2)	216 (1.8)	238 (1.9)	258 (2.0)	275 (1.6)	285 (1.3)
Maryland	220 (1.7)	159 (3.3)	172 (3.4)	195 (1.7)	221 (1.6)	245 (1.5)	266 (1.4)	276 (2.0)
Massachusetts	229 (1.6)	168 (3.8)	183 (3.1)	208 (2.3)	231 (1.9)	253 (1.7)	272 (2.2)	283 (1.4)
Michigan	225 (2.0)	163 (7.4)	179 (3.7)	204 (2.4)	228 (1.8)	250 (1.5)	268 (2.2)	278 (2.3)
Minnesota	233 (1.3)	177 (2.9)	191 (2.2)	213 (1.6)	235 (1.4)	256 (1.0)	274 (1.2)	284 (2.0)
Mississippi	206 (1.5)	153 (2.8)	164 (1.8)	184 (1.6)	206 (1.4)	228 (1.7)	247 (2.1)	258 (1.8)
Missouri	226 (1.7)	168 (3.0)	183 (4.2)	205 (1.7)	228 (1.7)	250 (2.1)	268 (2.6)	279 (2.8)
Nebraska	230 (1.5)	173 (2.6)	186 (1.9)	209 (2.7)	232 (1.9)	253 (1.6)	270 (1.1)	280 (2.7)
New Hampshire	234 (1.5)	184 (2.3)	195 (2.1)	214 (1.9)	235 (1.7)	255 (1.5)	272 (2.2)	282 (3.0)
New Jersey	230 (1.9)	168 (5.5)	183 (4.2)	208 (2.6)	232 (1.6)	255 (1.4)	274 (2.8)	285 (2.3)
New Mexico	216 (1.6)	165 (2.3)	177 (1.4)	196 (1.5)	217 (2.0)	237 (1.5)	256 (1.5)	267 (1.9)
New York	221 (1.7)	158 (3.2)	173 (1.7)	198 (2.1)	222 (1.7)	245 (2.2)	264 (2.1)	276 (2.6)
North Carolina	216 (1.3)	159 (1.8)	171 (1.7)	192 (1.6)	217 (1.3)	239 (1.2)	259 (0.8)	270 (2.8)
North Dakota	235 (1.3)	187 (4.0)	198 (1.4)	217 (1.3)	236 (1.8)	254 (1.4)	270 (1.5)	279 (2.0)
Ohio	223 (1.6)	168 (3.4)	180 (2.1)	200 (1.3)	223 (2.1)	245 (1.7)	265 (2.4)	276 (2.5)
Oklahoma	224 (1.3)	173 (2.7)	185 (1.7)	205 (1.8)	224 (0.8)	244 (1.6)	261 (1.7)	272 (2.1)
Pennsylvania	229 (1.6)	169 (4.9)	183 (1.8)	207 (2.7)	230 (1.5)	253 (1.2)	271 (1.8)	281 (2.8)
Rhode Island	218 (1.8)	159 (1.7)	173 (3.0)	196 (2.9)	220 (1.6)	242 (2.1)	261 (4.1)	273 (3.3)
South Carolina	218 (1.6)	168 (1.9)	178 (2.6)	196 (2.3)	217 (1.5)	239 (1.5)	258 (1.4)	269 (1.4)
Tennessee	213 (1.4)	159 (1.6)	172 (2.4)	192 (1.8)	214 (1.6)	235 (1.5)	253 (1.5)	263 (1.6)
Texas	220 (1.6)	163 (3.0)	177 (2.4)	198 (2.1)	221 (1.5)	243 (2.6)	264 (2.7)	275 (1.9)
Utah	229 (1.1)	176 (1.6)	189 (1.2)	209 (1.8)	230 (1.3)	250 (1.3)	268 (1.6)	278 (2.1)
Virginia	224 (1.5)	170 (1.4)	182 (1.9)	202 (2.0)	225 (1.3)	247 (1.9)	266 (2.1)	277 (2.0)
West Virginia	223 (1.3)	173 (1.6)	184 (1.2)	202 (1.6)	223 (1.3)	243 (1.1)	261 (2.5)	271 (1.6)
Wisconsin	234 (1.2)	179 (2.1)	192 (1.8)	214 (1.4)	235 (1.5)	255 (1.7)	273 (1.4)	282 (1.9)
Wyoming	230 (1.2)	182 (1.6)	192 (1.7)	211 (1.6)	231 (1.9)	249 (1.7)	266 (1.3)	275 (1.3)
TERRITORY								
Guam	192 (1.1)	131 (4.3)	144 (2.8)	168 (1.7)	192 (1.4)	216 (1.3)	238 (2.2)	250 (2.5)

The standard errors of the estimated proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample.

TABLE 3.8 | Percentiles of Proficiency in Measurement (continued)

PUBLIC SCHOOLS	Grade 8 - 1992							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	264 (1.3)	190 (2.1)	206 (1.3)	233 (1.4)	265 (1.5)	296 (1.6)	323 (2.8)	338 (1.9)
Northeast	265 (3.9)	188 (4.7)	204 (5.3)	231 (4.2)	263 (4.4)	298 (3.9)	328 (3.1)	343 (2.8)
Southeast	253 (1.6)	183 (4.5)	197 (3.7)	222 (2.1)	254 (2.5)	284 (1.5)	310 (4.1)	326 (3.7)
Central	272 (2.7)	200 (3.3)	215 (4.0)	243 (4.4)	274 (2.6)	301 (3.0)	325 (3.4)	339 (2.7)
West	266 (2.8)	191 (4.9)	209 (4.5)	235 (2.1)	237 (1.9)	297 (4.0)	325 (2.9)	340 (4.0)
STATES								
Alabama	245 (2.3)	171 (6.0)	187 (2.5) <	214 (1.8)	244 (2.8)	276 (2.7)	305 (2.5)	320 (2.6)
Arizona	264 (2.3)	192 (3.4)	209 (4.0)	236 (2.5)	265 (2.9)	293 (2.6)	318 (3.3)	333 (5.5)
Arkansas	251 (1.3)	183 (2.3)	198 (2.0)	225 (2.1)	253 (1.4)	279 (2.5)	303 (1.4)	317 (2.5)
California	258 (2.1) >	179 (4.6)	197 (4.4)	228 (3.0)	260 (2.2)	291 (1.9) >	317 (4.0)	331 (3.6)
Colorado	273 (1.6) »	204 (2.8)	219 (2.5)	246 (2.2)	273 (1.5) >	301 (1.9) >	324 (1.5)	337 (1.8)
Connecticut	275 (1.6) >	198 (4.3)	215 (4.0)	244 (1.8)	277 (2.1)	306 (1.9)	331 (2.5)	346 (3.4)
Delaware	258 (1.5)	188 (5.4)	203 (2.9)	230 (2.4)	259 (2.0)	288 (2.3)	311 (2.2)	327 (2.1)
Dist. Columbia	221 (1.6)	150 (3.6) <	165 (3.2)	191 (1.5) <	221 (1.9)	249 (2.1)	279 (3.7)	297 (5.0)
Florida	254 (2.1)	178 (5.4)	197 (4.2)	225 (2.8)	256 (1.9)	285 (2.8)	311 (1.9)	325 (2.6)
Georgia	253 (2.1)	182 (4.0)	197 (2.7)	223 (2.4)	254 (2.3)	283 (2.3)	308 (3.1)	324 (2.6)
Hawaii	254 (1.0) >	182 (1.9)	198 (2.0)	225 (1.2)	254 (2.3)	284 (1.7)	310 (2.5)	326 (2.4)
Idaho	276 (1.4) >	207 (3.2)	224 (2.6)	249 (1.4)	276 (1.7)	303 (1.6) >	326 (1.6) »	340 (1.7) >
Indiana	269 (1.7)	198 (3.4)	213 (2.0)	240 (1.9)	269 (1.4)	297 (1.9)	325 (2.3)	341 (3.3)
Iowa	287 (1.6) »	222 (2.6) >	237 (2.7) >	261 (2.4) >	288 (1.6) »	314 (1.6) »	337 (2.6)	351 (2.5)
Kentucky	259 (1.3) >	191 (2.2)	206 (1.3)	231 (2.4)	259 (1.6)	286 (1.3) >	312 (2.2)	327 (2.4)
Louisiana	242 (2.0)	172 (1.6)	187 (3.0)	214 (2.4)	242 (2.1)	270 (2.1)	295 (3.7)	310 (2.6)
Maine	282 (1.5)	217 (3.3)	232 (1.5)	256 (1.2)	281 (1.4)	308 (2.8)	332 (2.1)	345 (3.1)
Maryland	261 (1.7)	179 (2.5)	197 (3.3)	227 (2.1)	261 (1.8)	295 (3.2)	324 (4.0)	340 (3.2)
Massachusetts	270 (1.5)	196 (3.5)	214 (2.1)	242 (1.9)	271 (1.4)	301 (2.2)	326 (2.6)	340 (4.3)
Michigan	266 (2.0)	188 (3.4)	206 (3.0)	236 (1.8)	267 (1.8)	298 (2.6) >	323 (2.6)	338 (4.1)
Minnesota	285 (1.5) »	217 (1.9)	232 (2.6)	258 (2.4) >	286 (2.0) »	313 (1.9) »	336 (1.7) »	349 (2.3) »
Mississippi	236 (2.1)	166 (2.6)	181 (1.9)	207 (2.6)	236 (2.0)	266 (3.4)	293 (3.0)	308 (3.6)
Missouri	271 (1.8)	204 (3.0)	220 (2.2)	245 (2.5)	273 (1.6)	298 (1.9)	321 (2.5)	335 (2.8)
Nebraska	278 (1.7)	206 (2.9)	224 (2.4)	251 (2.1)	280 (1.7)	307 (2.2)	330 (2.4)	344 (3.0)
New Hampshire	280 (1.9) >	216 (2.6)	231 (1.6)	255 (1.5)	281 (2.1) >	306 (2.9)	329 (2.9)	342 (2.7)
New Jersey	268 (2.2)	191 (3.3)	208 (3.3)	238 (2.1)	270 (2.8)	300 (3.2)	326 (1.7)	340 (1.5)
New Mexico	257 (1.5)	190 (4.5)	206 (2.2)	231 (2.0)	257 (1.6)	285 (1.8)	309 (3.8)	324 (2.6)
New York	262 (2.5)	175 (6.4)	198 (5.1)	231 (3.1)	265 (2.2) >	296 (1.6) >	323 (2.0)	339 (4.6)
North Carolina	253 (1.8) »	184 (2.1) >	199 (2.9)	225 (1.8) »	254 (1.9) »	282 (2.5) >	307 (2.4) >	322 (3.6)
North Dakota	285 (1.9)	219 (4.6)	235 (3.1)	260 (2.6)	287 (2.5)	312 (2.2)	334 (2.1)	347 (2.3)
Ohio	266 (2.3)	190 (3.3)	207 (3.5)	237 (3.9)	268 (2.4)	296 (2.6)	321 (1.6)	334 (2.0)
Oklahoma	266 (2.3) >	196 (5.1)	212 (3.0)	239 (2.6)	266 (2.5)	295 (3.1)	317 (2.3)	332 (2.9)
Pennsylvania	271 (2.0)	201 (4.0)	217 (4.2)	244 (2.3)	272 (2.4)	300 (2.3)	325 (3.4)	340 (2.6)
Rhode Island	263 (1.1) »	194 (1.8)	210 (1.6)	237 (1.4) »	266 (1.5) »	291 (1.3)	313 (2.3)	327 (3.5)
South Carolina	257 (1.6)	189 (2.1)	203 (1.8)	227 (1.9)	255 (1.8)	285 (1.7)	313 (2.6)	330 (3.6)
Tennessee	253 (2.0)	184 (3.0)	200 (1.9)	225 (3.1)	254 (1.9)	282 (2.6)	306 (2.2)	321 (4.1)
Texas	260 (1.7) >	186 (2.5)	202 (1.6)	228 (2.1)	259 (2.0)	291 (2.5) >	319 (2.3) »	336 (3.6) >
Utah	275 (1.3)	204 (2.7)	221 (2.2)	249 (1.9)	276 (1.4)	302 (1.6)	325 (1.6)	339 (1.9)
Virginia	265 (1.7)	193 (2.6)	209 (2.8)	236 (2.0)	264 (2.0)	295 (2.4)	322 (1.7)	337 (3.2)
West Virginia	256 (1.6)	194 (2.1)	207 (1.5)	230 (2.7)	256 (2.6)	282 (2.0)	304 (3.1)	318 (3.0)
Wisconsin	279 (2.0)	211 (4.3)	227 (3.1)	253 (2.9)	281 (2.1)	308 (2.3)	329 (1.8)	342 (1.8)
Wyoming	278 (1.2) »	218 (2.3) >	231 (2.4)	253 (1.8) >	279 (1.2) »	302 (1.8)	324 (1.7)	336 (2.6)
TERRITORIES								
Guam	228 (1.6)	152 (2.8) <	169 (2.5)	197 (3.2)	228 (2.3)	260 (2.9)	289 (2.8)	305 (2.7) >
Virgin Islands	211 (1.7)	149 (4.4)	163 (4.0)	186 (2.9)	211 (2.2)	235 (2.2)	258 (2.4)	272 (2.6)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

TABLE 3.8 | Percentiles of Proficiency in Measurement (continued)

PUBLIC SCHOOLS	Grade 8 - 1990							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	258 (1.6)	185 (3.2)	202 (1.9)	230 (2.7)	259 (2.2)	288 (2.2)	312 (2.3)	326 (2.1)
Northeast	267 (4.2)	197 (4.0)	215 (5.9)	240 (2.8)	267 (5.8)	294 (3.9)	317 (5.2)	331 (4.3)
Southeast	248 (2.9)	174 (6.5)	191 (5.5)	218 (3.7)	248 (2.5)	279 (4.4)	304 (4.6)	319 (7.0)
Central	262 (3.0)	193 (6.0)	210 (3.4)	236 (3.3)	263 (3.5)	290 (2.8)	312 (6.9)	326 (6.0)
West	257 (3.2)	183 (8.3)	200 (4.2)	228 (2.3)	258 (4.7)	287 (3.5)	313 (3.8)	328 (5.6)
STATES								
Alabama	248 (1.4)	184 (3.4)	198 (1.4)	221 (1.5)	249 (1.9)	274 (1.8)	297 (3.4)	311 (2.4)
Arizona	257 (1.6)	191 (5.5)	205 (3.4)	230 (2.1)	257 (2.0)	285 (1.8)	308 (2.1)	322 (4.9)
Arkansas	254 (1.3)	189 (2.6)	204 (2.4)	227 (1.3)	254 (1.9)	281 (2.5)	304 (2.2)	317 (1.8)
California	252 (1.4)	180 (2.5)	196 (2.1)	223 (2.5)	252 (1.9)	281 (2.3)	308 (1.9)	323 (3.3)
Colorado	265 (1.2)	197 (2.0)	213 (2.1)	239 (1.4)	265 (1.4)	292 (1.8)	316 (3.0)	330 (3.0)
Connecticut	268 (1.6)	196 (2.8)	213 (2.0)	240 (1.9)	269 (1.7)	298 (2.3)	322 (1.6)	337 (2.7)
Delaware	259 (1.2)	192 (2.0)	206 (2.8)	231 (1.5)	258 (2.0)	287 (1.5)	311 (1.7)	326 (3.8)
Dist. Columbia	222 (1.4)	164 (2.5)	176 (1.9)	199 (1.7)	221 (1.7)	244 (1.2)	269 (2.9)	286 (5.2)
Florida	252 (1.5)	181 (2.8)	198 (2.4)	224 (1.6)	252 (1.6)	280 (1.7)	306 (2.9)	323 (4.0)
Georgia	253 (1.5)	182 (2.0)	198 (1.6)	223 (1.6)	253 (1.5)	282 (1.8)	307 (2.0)	322 (3.4)
Hawaii	249 (0.9)	180 (1.4)	195 (1.8)	221 (1.9)	249 (1.4)	278 (1.8)	303 (2.9)	317 (2.9)
Idaho	269 (1.1)	208 (3.0)	221 (2.2)	245 (1.2)	270 (1.7)	295 (1.5)	316 (1.2)	328 (2.5)
Indiana	265 (2.0)	200 (3.3)	214 (2.2)	237 (1.8)	264 (2.1)	291 (2.6)	316 (2.7)	332 (3.6)
Iowa	276 (1.6)	210 (2.6)	224 (1.9)	249 (2.0)	276 (1.5)	304 (1.5)	327 (2.1)	341 (3.9)
Kentucky	254 (1.2)	191 (2.5)	204 (2.3)	228 (1.7)	253 (1.7)	279 (1.3)	303 (2.3)	318 (3.1)
Louisiana	241 (1.4)	176 (2.0)	191 (2.6)	215 (2.1)	241 (1.7)	268 (2.4)	291 (1.9)	305 (2.2)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	256 (1.7)	181 (2.9)	198 (2.0)	225 (1.9)	257 (2.4)	288 (2.1)	315 (2.1)	329 (3.7)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	261 (1.5)	193 (4.2)	209 (2.1)	234 (1.3)	261 (1.8)	288 (1.5)	313 (2.9)	327 (3.7)
Minnesota	272 (1.2)	205 (5.0)	222 (2.6)	246 (1.6)	273 (1.2)	299 (1.6)	321 (1.9)	335 (1.6)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	273 (1.6)	202 (2.7)	220 (2.4)	246 (2.2)	275 (1.6)	302 (1.5)	325 (2.3)	339 (3.2)
New Hampshire	272 (1.6)	212 (2.7)	226 (2.5)	248 (2.5)	272 (1.6)	296 (1.8)	318 (1.8)	333 (2.2)
New Jersey	267 (1.4)	197 (3.5)	212 (2.8)	239 (1.2)	268 (1.7)	297 (2.0)	323 (2.1)	337 (2.5)
New Mexico	254 (1.0)	192 (2.9)	205 (2.0)	228 (0.9)	253 (1.4)	279 (1.9)	304 (2.1)	317 (2.7)
New York	255 (2.1)	176 (7.1)	196 (4.2)	225 (2.4)	256 (1.9)	286 (2.5)	313 (2.4)	329 (3.2)
North Carolina	242 (1.3)	175 (1.4)	190 (1.8)	215 (1.5)	242 (1.7)	270 (2.0)	295 (2.8)	310 (2.2)
North Dakota	279 (1.6)	214 (6.3)	230 (2.0)	255 (2.6)	280 (2.1)	305 (1.6)	326 (2.3)	340 (3.4)
Ohio	259 (1.3)	189 (5.9)	205 (1.2)	232 (1.2)	260 (1.5)	287 (2.3)	313 (3.2)	328 (2.4)
Oklahoma	258 (1.6)	194 (2.8)	208 (2.0)	232 (1.8)	258 (3.0)	284 (1.6)	309 (2.7)	323 (3.2)
Pennsylvania	264 (2.0)	190 (4.4)	207 (6.7)	236 (2.4)	265 (1.9)	294 (2.3)	320 (2.5)	335 (3.2)
Rhode Island	257 (0.7)	189 (2.4)	205 (1.6)	229 (1.0)	257 (1.0)	285 (1.5)	309 (1.3)	323 (2.9)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	254 (1.5)	187 (4.1)	202 (2.0)	227 (2.1)	253 (1.7)	281 (1.7)	305 (2.2)	320 (2.4)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	260 (1.8)	194 (1.0)	207 (1.5)	231 (1.8)	259 (1.8)	287 (2.2)	314 (3.3)	331 (3.2)
West Virginia	253 (1.2)	191 (1.9)	205 (2.6)	228 (1.6)	252 (1.6)	277 (1.4)	301 (1.8)	316 (2.6)
Wisconsin	273 (1.6)	205 (2.9)	221 (2.8)	247 (1.8)	274 (1.9)	300 (1.5)	324 (2.1)	338 (2.3)
Wyoming	270 (0.8)	206 (2.2)	222 (1.7)	244 (1.7)	270 (1.1)	296 (1.1)	318 (1.1)	331 (1.6)
TERRITORIES								
Guam	229 (1.3)	165 (1.9)	178 (2.5)	202 (2.0)	228 (1.8)	255 (1.8)	280 (1.1)	294 (2.3)
Virgin Islands	216 (2.0)	160 (3.1)	173 (2.2)	193 (2.3)	216 (2.2)	238 (2.5)	259 (2.4)	271 (3.9)

(xxx) Did not participate in the 1990 Trial State Assessment.

State Performance in Geometry

FIGURE 3.8 shows the comparative state-by-state performance in geometry at grade 4 in 1992. Here the state groupings by average proficiency show a marked change from that observed for overall mathematics performance. The top group of states essentially consists of 13 states, including Maine, New Hampshire, and Connecticut. However, fourth graders in Minnesota, Iowa, North Dakota, Nebraska, Massachusetts, Wisconsin, Wyoming, Utah, Colorado and New Jersey performed as well as, if not better than, fourth graders in all other participating jurisdictions except those in Maine. While there are a few minor differences between states in this group, their overall performance is very similar.

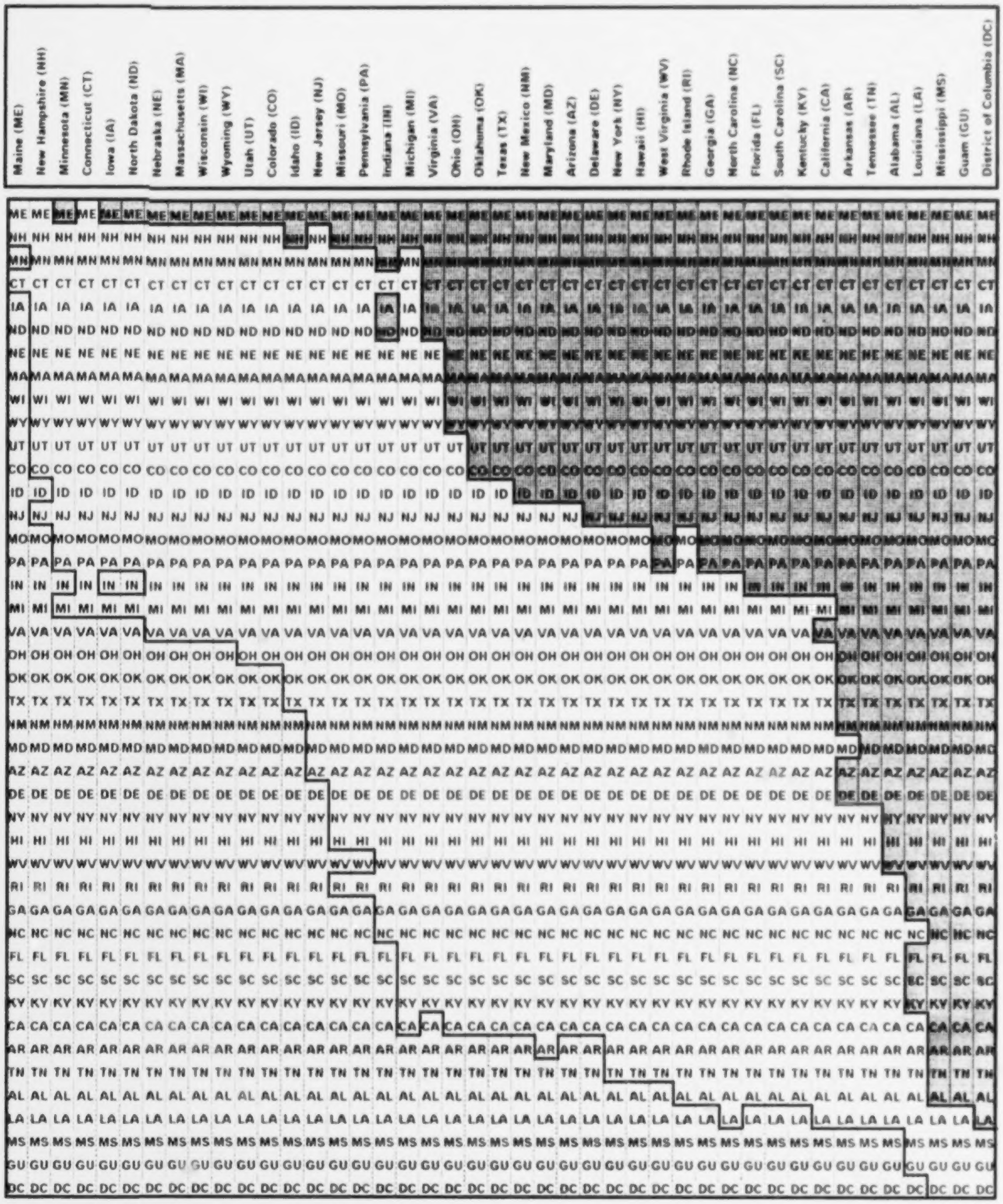
FIGURE 3.9 shows the state-by-state performance and differences for the area of geometry at grade 8 for 1992. In contrast to the similar geometry performance in quite a few states at grade 4, the pattern of performance at grade 8 is almost identical to that for overall mathematics proficiency.

TABLE 3.9 contains information on the percentile distributions for student proficiency in geometry at grade 4 in 1992 and at grade 8 in both 1992 and 1990. Compared to numbers and operations and measurement, there were fewer improvements at grade 8 between 1992 and 1990 in the area of geometry. Across the 37 jurisdictions that participated in both assessments, statistically significant improvements in average geometry proficiency occurred only in Hawaii, Minnesota, North Carolina, and Rhode Island. Consistent with the few participating jurisdictions showing improvements in average geometry proficiency, there were few improvements across the percentiles.

FIGURE 3.8

Comparisons of Geometry Average Proficiency 1992 Grade 4

INSTRUCTIONS: Read *down* the column directly under a state name listed in the heading at the top of the chart. Match the shading intensity surrounding a state postal abbreviation to the key below to determine whether the average mathematics performance of this state is higher than, the same as, or lower than the state in the column heading.



Maine (ME)
New Hampshire (NH)
Minnesota (MN)
Connecticut (CT)
Iowa (IA)
North Dakota (ND)
Nebraska (NE)
Massachusetts (MA)
Wisconsin (WI)
Wyoming (WY)
Utah (UT)
Colorado (CO)
Idaho (ID)
New Jersey (NJ)
Missouri (MO)
Pennsylvania (PA)
Indiana (IN)
Michigan (MI)
Virginia (VA)
Ohio (OH)
Oklahoma (OK)
Texas (TX)
New Mexico (NM)
Maryland (MD)
Arizona (AZ)
Delaware (DE)
New York (NY)
Hawaii (HI)
West Virginia (WV)
Rhode Island (RI)
Georgia (GA)
North Carolina (NC)
Florida (FL)
South Carolina (SC)
Kentucky (KY)
California (CA)
Arkansas (AR)
Tennessee (TN)
Alabama (AL)
Louisiana (LA)
Mississippi (MS)
Guam (GU)
District of Columbia (DC)
ME NH MN CT IA ND NE MA WI WY UT CO ID NJ MO PA IN MI VA OH OK TX NM MD AZ DE NY HI WV RI GA NC FL SC KY CA AR TN AL LA MS GU DC

▨ State has statistically significantly higher average proficiency than the state listed at the top of the chart.

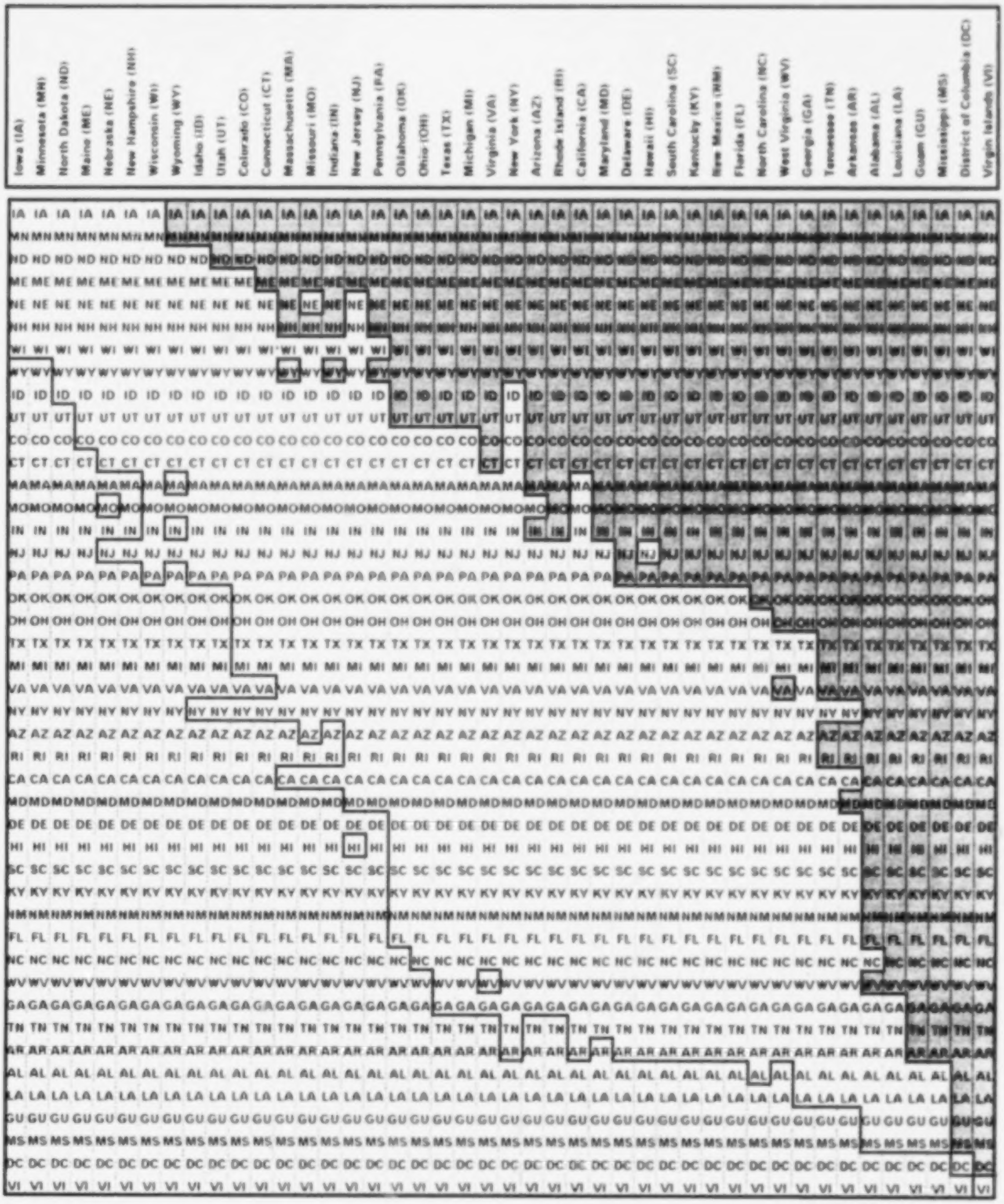
☐ No statistically significant difference from the state listed at the top of the chart.

☐ State has statistically significantly lower average proficiency than the state listed at the top of the chart.

The between state comparisons take into account sampling and measurement error and that each state is being compared with every other state. Significance is determined by an application of the Bonferroni procedure based on 946 comparisons by comparing the difference between the two means with four times the square root of the sum of the squared standard errors.

FIGURE 3.9 | Comparisons of Geometry Average Proficiency 1992 Grade 8

INSTRUCTIONS: Read *down* the column directly under a state name listed in the heading at the top of the chart. Match the shading intensity surrounding a state postal abbreviation to the key below to determine whether the average mathematics performance of this state is higher than, the same as, or lower than the state in the column heading.



Iowa (IA)	Minnesota (MN)	North Dakota (ND)	Maine (ME)	Nebraska (NE)	New Hampshire (NH)	Wisconsin (WI)	Wyoming (WY)	Idaho (ID)	Utah (UT)	Colorado (CO)	Connecticut (CT)	Massachusetts (MA)	Missouri (MO)	Indiana (IN)	New Jersey (NJ)	Pennsylvania (PA)	Oklahoma (OK)	Ohio (OH)	Texas (TX)	Michigan (MI)	Virginia (VA)	New York (NY)	Arizona (AZ)	Rhode Island (RI)	California (CA)	Maryland (MD)	Delaware (DE)	Hawaii (HI)	South Carolina (SC)	Kentucky (KY)	New Mexico (NM)	Florida (FL)	North Carolina (NC)	West Virginia (WV)	Georgia (GA)	Tennessee (TN)	Arkansas (AR)	Alabama (AL)	Louisiana (LA)	Guam (GU)	Mississippi (MS)	District of Columbia (DC)	Virgin Islands (VI)
IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME
NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH
WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI
WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY	WY
ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID
UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT	UT
CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO
CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT
MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA	MA
MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO	MO
IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN
NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA
OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH	OH
TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX	TX
MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI
VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA	VA
NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY	NY
AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ	AZ
RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI
CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA
MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD
DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE	DE
HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI
SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC
KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY	KY
NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL
NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV	WV
GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA
TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN	TN
AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR
AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL	AL
LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA	LA
GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU	GU
MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS
DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC
VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI	VI

▨ State has statistically significantly higher average proficiency than the state listed at the top of the chart.

☐ No statistically significant difference from the state listed at the top of the chart.

☐ State has statistically significantly lower average proficiency than the state listed at the top of the chart.

The between state comparisons take into account sampling and measurement error and that each state is being compared with every other state. Significance is determined by an application of the Bonferroni procedure based on 946 comparisons by comparing the difference between the two means with four times the square root of the sum of the squared standard errors.

TABLE 3.9 | Percentiles of Proficiency in Geometry

PUBLIC SCHOOLS	Grade 4 - 1992							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	220 (0.7)	167 (1.7)	179 (1.1)	199 (0.9)	221 (1.2)	242 (1.0)	260 (1.2)	270 (0.8)
Northeast	224 (2.2)	171 (3.7)	183 (2.2)	202 (2.8)	225 (2.8)	247 (2.8)	265 (1.0)	273 (1.9)
Southeast	212 (1.6)	159 (3.2)	171 (2.2)	190 (2.0)	213 (1.0)	234 (2.0)	252 (2.3)	263 (2.9)
Central	224 (2.0)	173 (5.0)	185 (4.4)	205 (3.3)	225 (2.7)	244 (1.3)	261 (1.6)	270 (2.1)
West	222 (1.3)	168 (3.4)	181 (1.1)	201 (1.7)	223 (1.8)	244 (2.2)	260 (1.7)	270 (2.9)
STATES								
Alabama	209 (1.4)	160 (1.2)	171 (1.7)	189 (1.3)	209 (2.1)	230 (1.7)	247 (1.8)	257 (2.3)
Arizona	219 (1.0)	168 (1.8)	180 (1.7)	199 (1.3)	220 (1.0)	239 (0.9)	256 (1.1)	267 (1.8)
Arkansas	212 (1.3)	161 (3.4)	172 (2.0)	192 (1.5)	213 (1.6)	232 (2.0)	249 (1.6)	258 (2.0)
California	213 (1.6)	149 (3.1)	164 (3.3)	189 (2.3)	215 (1.7)	238 (2.0)	258 (2.0)	269 (2.3)
Colorado	227 (1.0)	179 (2.4)	190 (2.1)	208 (1.8)	227 (1.1)	246 (1.1)	262 (1.3)	272 (1.7)
Connecticut	230 (1.3)	179 (3.3)	191 (2.6)	210 (1.9)	231 (1.8)	250 (1.7)	266 (1.3)	276 (1.8)
Delaware	219 (0.9)	170 (2.2)	181 (1.3)	199 (1.1)	219 (1.2)	239 (1.1)	256 (1.8)	267 (2.2)
Dist. Columbia	198 (0.9)	144 (2.2)	156 (1.6)	175 (0.9)	196 (1.3)	220 (1.2)	242 (2.0)	256 (3.0)
Florida	215 (1.2)	162 (2.7)	175 (2.0)	195 (1.7)	216 (1.3)	237 (1.4)	255 (2.0)	265 (2.4)
Georgia	216 (1.2)	167 (2.2)	178 (1.6)	196 (1.5)	217 (1.3)	237 (1.9)	254 (1.6)	265 (1.1)
Hawaii	218 (1.2)	156 (3.4)	171 (2.0)	195 (2.3)	220 (1.4)	242 (1.1)	261 (1.6)	272 (2.4)
Idaho	226 (1.1)	179 (1.9)	190 (2.1)	208 (1.7)	227 (1.3)	245 (1.5)	260 (1.9)	269 (1.0)
Indiana	223 (1.2)	180 (1.8)	189 (1.5)	205 (1.3)	223 (1.3)	240 (1.2)	256 (1.9)	265 (2.1)
Iowa	229 (1.0)	180 (2.1)	193 (1.5)	211 (1.1)	230 (0.9)	249 (1.8)	265 (1.5)	275 (1.6)
Kentucky	215 (1.1)	171 (1.7)	181 (1.6)	197 (1.1)	214 (1.1)	233 (1.5)	249 (2.1)	258 (1.7)
Louisiana	206 (1.7)	155 (3.9)	167 (2.6)	186 (2.0)	207 (1.5)	227 (1.5)	245 (1.8)	256 (2.9)
Maine	236 (0.9)	192 (2.5)	202 (1.5)	219 (1.1)	237 (1.0)	254 (1.0)	269 (1.9)	277 (1.8)
Maryland	219 (1.2)	159 (2.3)	173 (2.0)	196 (2.0)	220 (1.2)	243 (1.6)	263 (2.3)	274 (2.2)
Massachusetts	229 (1.2)	180 (1.8)	191 (1.6)	210 (1.2)	229 (1.7)	248 (1.1)	265 (1.6)	274 (1.5)
Michigan	222 (1.7)	166 (4.0)	180 (3.2)	202 (2.1)	224 (1.8)	244 (1.6)	261 (1.5)	271 (1.6)
Minnesota	230 (0.9)	176 (2.1)	190 (1.7)	210 (1.5)	231 (1.0)	251 (1.6)	268 (1.1)	279 (1.4)
Mississippi	202 (1.0)	150 (3.0)	162 (1.6)	181 (1.2)	202 (1.3)	223 (1.5)	242 (1.4)	252 (2.1)
Missouri	224 (1.1)	176 (2.4)	187 (1.7)	206 (1.0)	225 (1.0)	243 (1.0)	259 (1.9)	269 (2.8)
Nebraska	229 (1.2)	180 (2.5)	191 (1.4)	209 (1.4)	229 (1.6)	249 (1.4)	266 (2.1)	276 (2.2)
New Hampshire	233 (1.2)	189 (2.7)	199 (1.3)	215 (1.4)	233 (1.3)	251 (1.6)	267 (1.1)	276 (2.5)
New Jersey	226 (1.4)	175 (2.4)	188 (2.5)	207 (1.7)	227 (2.0)	246 (1.1)	263 (1.7)	272 (1.2)
New Mexico	219 (1.2)	173 (1.6)	183 (1.6)	201 (1.6)	220 (1.1)	238 (1.3)	255 (2.0)	264 (1.2)
New York	218 (1.2)	165 (3.1)	178 (1.8)	198 (1.3)	219 (1.0)	238 (1.4)	257 (1.5)	268 (2.7)
North Carolina	215 (1.6)	163 (1.7)	175 (2.4)	194 (1.9)	216 (1.5)	237 (1.5)	255 (1.8)	265 (2.5)
North Dakota	229 (1.0)	187 (2.3)	197 (1.7)	213 (1.7)	230 (0.9)	247 (1.4)	261 (1.0)	269 (1.7)
Ohio	221 (1.3)	173 (2.0)	183 (1.6)	202 (1.4)	221 (1.0)	241 (1.1)	258 (2.3)	269 (2.2)
Oklahoma	220 (1.1)	175 (1.6)	185 (1.8)	202 (1.0)	220 (1.3)	238 (1.1)	255 (2.0)	264 (3.1)
Pennsylvania	223 (1.2)	172 (2.2)	185 (2.3)	204 (1.9)	224 (1.3)	244 (1.2)	262 (2.0)	272 (1.2)
Rhode Island	216 (1.6)	164 (3.1)	176 (2.4)	196 (2.1)	217 (1.5)	237 (1.6)	255 (2.3)	265 (2.3)
South Carolina	215 (1.1)	164 (0.9)	175 (2.3)	194 (1.3)	214 (0.9)	236 (1.5)	256 (2.5)	267 (1.9)
Tennessee	211 (1.6)	159 (2.7)	171 (2.3)	191 (2.2)	211 (1.9)	232 (1.4)	249 (1.7)	260 (1.6)
Texas	220 (1.4)	169 (1.2)	181 (2.0)	200 (1.6)	220 (1.4)	240 (1.5)	259 (2.0)	269 (3.0)
Utah	227 (0.9)	181 (2.1)	192 (1.4)	209 (1.8)	227 (1.1)	245 (1.0)	260 (0.8)	270 (1.5)
Virginia	222 (1.3)	170 (1.9)	182 (1.5)	201 (1.5)	222 (1.2)	243 (1.8)	262 (1.7)	273 (2.3)
West Virginia	217 (1.0)	170 (1.8)	180 (1.2)	198 (1.1)	217 (1.0)	236 (1.1)	252 (1.2)	262 (1.1)
Wisconsin	228 (1.2)	180 (2.1)	192 (1.5)	210 (1.7)	229 (1.7)	247 (1.1)	263 (1.1)	273 (2.3)
Wyoming	228 (1.1)	184 (1.8)	195 (1.8)	211 (1.5)	228 (0.9)	245 (1.1)	260 (2.4)	268 (1.7)
TERRITORY								
Guam	201 (1.2)	144 (4.2)	157 (2.6)	179 (2.2)	202 (1.6)	225 (1.7)	244 (1.7)	256 (2.5)

The standard errors of the estimated proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample.

TABLE 3.9 | Percentiles of Proficiency in Geometry (continued)

PUBLIC SCHOOLS	Grade 8 - 1992							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	262 (1.0)	204 (1.7)	216 (1.0)	238 (1.4)	262 (1.1)	286 (1.0)	307 (1.4)	318 (1.8)
Northeast	263 (3.1)	203 (3.6)	215 (4.2)	237 (2.8)	262 (2.5)	289 (2.6)	312 (3.9)	324 (6.2)
Southeast	253 (1.3)	198 (3.3)	210 (2.3)	230 (1.3)	254 (1.3)	277 (1.8)	297 (2.2)	309 (2.9)
Central	269 (2.1)	213 (5.4)	225 (2.5)	247 (2.2)	270 (1.9)	292 (1.5)	309 (2.2)	320 (2.9)
West	263 (2.2)	204 (2.9)	217 (3.7)	239 (3.0)	264 (2.3)	287 (2.4)	307 (1.8)	319 (3.1)
STATES								
Alabama	245 (1.9)	187 (5.0)	201 (3.4)	222 (2.0)	245 (1.9)	269 (2.0)	291 (2.0)	303 (1.9)
Arizona	260 (1.0)	210 (2.2)	221 (1.4)	240 (1.2)	260 (1.2)	280 (1.2)	299 (1.5)	311 (1.4)
Arkansas	250 (1.5)	193 (1.4)	206 (1.6)	228 (2.4)	251 (1.5)	274 (1.5)	293 (2.2)	304 (3.8)
California	259 (1.9)	198 (3.6)	213 (3.5)	236 (2.1)	260 (2.2)	284 (1.8)	304 (2.0)	315 (4.0)
Colorado	269 (1.1)	216 (1.9)	228 (2.0)	248 (1.6)	270 (1.0)	290 (1.2)	307 (1.8)	317 (1.5)
Connecticut	268 (1.0)	208 (2.4)	222 (2.0)	245 (1.9)	270 (1.0)	293 (0.9)	311 (1.5)	322 (1.6)
Delaware	257 (1.1)	200 (2.0)	213 (2.4)	234 (1.5)	257 (1.4)	280 (1.4)	300 (1.9)	313 (3.3)
Dist. Columbia	231 (1.3)	175 (3.1)	187 (2.3)	207 (1.0)	230 (1.8)	254 (1.4)	277 (3.5)	291 (2.5)
Florida	255 (1.3)	197 (2.2)	210 (1.3)	232 (1.3)	256 (1.6)	279 (1.2)	298 (2.4)	309 (4.1)
Georgia	253 (1.4)	198 (2.6)	210 (2.0)	231 (1.9)	254 (1.6)	276 (1.4)	296 (2.6)	307 (2.2)
Hawaii	257 (1.2) >	197 (2.7)	210 (2.5)	233 (1.5) >	258 (1.8)	282 (1.8)	302 (1.6)	314 (2.0)
Idaho	271 (0.9)	223 (1.6)	234 (2.0)	252 (0.7)	272 (1.1)	290 (1.5)	307 (1.5)	317 (1.3)
Indiana	266 (1.2)	211 (1.7)	224 (1.8)	244 (1.6)	266 (1.3)	289 (1.2)	309 (1.9)	321 (1.0)
Iowa	278 (1.2)	226 (2.6)	237 (1.3)	257 (1.6)	278 (0.9)	299 (1.3)	317 (2.6)	327 (1.9)
Kentucky	256 (1.1)	202 (1.1)	213 (1.3)	234 (1.4)	257 (1.2)	278 (1.2)	298 (1.8)	311 (3.1)
Louisiana	244 (1.7)	189 (1.9)	201 (1.2)	222 (1.9)	245 (1.6)	267 (2.0)	288 (2.1)	300 (2.9)
Maine	274 (0.9)	225 (2.5)	236 (1.4)	255 (2.1)	274 (1.2)	294 (0.8)	311 (2.1)	322 (1.5)
Maryland	259 (1.3)	195 (3.5)	209 (3.0)	233 (1.5)	259 (1.8)	286 (1.9)	308 (2.3)	321 (2.8)
Massachusetts	267 (1.1)	211 (2.3)	224 (2.2)	244 (1.3)	267 (1.5)	290 (1.5)	309 (1.5)	320 (2.3)
Michigan	261 (1.5)	200 (1.5)	215 (2.2)	239 (1.6)	263 (1.7)	286 (1.9)	306 (2.2)	318 (2.0)
Minnesota	278 (1.1) >	222 (3.3)	235 (2.2)	256 (2.0)	278 (1.1)	300 (1.6) >	319 (1.5)	331 (2.3)
Mississippi	239 (1.2)	183 (4.2)	195 (2.1)	216 (1.4)	239 (1.5)	263 (1.4)	283 (1.9)	294 (4.3)
Missouri	266 (1.3)	211 (4.0)	224 (2.8)	245 (2.1)	267 (1.4)	289 (1.9)	308 (2.2)	319 (3.1)
Nebraska	274 (1.3)	220 (2.7)	233 (1.5)	253 (1.9)	275 (1.4)	296 (1.5)	313 (1.6)	324 (1.8)
New Hampshire	273 (1.0)	225 (2.2)	236 (1.4)	254 (1.1)	274 (1.2)	292 (1.5)	310 (2.1)	320 (1.7)
New Jersey	265 (1.7)	204 (2.0)	218 (2.8)	241 (2.3)	267 (2.0)	290 (1.2)	310 (1.8)	322 (3.0)
New Mexico	256 (0.9)	206 (2.3)	217 (2.4)	236 (0.9)	256 (1.0)	276 (0.9)	295 (2.2)	306 (1.9)
New York	261 (2.4)	194 (6.5)	211 (3.8)	236 (2.6)	263 (1.8)	287 (2.6)	309 (1.8)	322 (1.9)
North Carolina	254 (1.4) >	199 (3.5)	212 (2.4)	232 (1.5) >	255 (1.3) >	277 (1.4)	296 (1.6)	308 (2.6)
North Dakota	277 (1.3)	227 (1.6)	239 (1.4)	258 (1.7)	278 (1.0)	297 (2.0)	312 (2.0)	321 (1.6)
Ohio	262 (1.3)	206 (3.2)	220 (1.4)	241 (1.7)	263 (2.1)	284 (1.5)	301 (1.8)	313 (2.0)
Oklahoma	262 (1.3)	209 (2.3)	222 (1.6)	242 (1.6)	263 (1.3)	283 (1.1)	301 (1.9)	311 (1.5)
Pennsylvania	265 (1.5)	205 (3.1)	219 (3.1)	242 (1.9)	266 (1.5)	289 (1.6)	309 (1.9)	321 (3.8)
Rhode Island	259 (0.8) >	205 (2.5)	217 (1.9)	238 (1.4)	260 (1.5)	282 (1.6)	301 (1.4)	312 (2.5)
South Carolina	256 (1.2)	199 (2.0)	212 (1.2)	233 (1.0)	255 (1.7)	280 (1.8)	302 (2.4)	314 (2.6)
Tennessee	252 (1.5)	196 (3.5)	209 (3.2)	230 (1.8)	253 (1.8)	276 (1.4)	296 (2.1)	307 (4.4)
Texas	262 (1.5)	202 (3.2)	215 (2.3)	238 (2.1)	262 (1.3)	286 (1.9)	307 (1.7)	320 (2.7)
Utah	269 (1.2)	220 (2.9)	231 (1.9)	250 (1.8)	270 (1.2)	289 (1.4)	307 (1.9)	317 (1.9)
Virginia	261 (1.3)	206 (3.3)	218 (1.6)	238 (1.6)	261 (1.2)	284 (1.2)	305 (2.2)	317 (1.3)
West Virginia	254 (1.1)	204 (2.2)	215 (1.5)	234 (1.7)	254 (1.9)	275 (1.8)	293 (2.2)	303 (1.9)
Wisconsin	272 (1.6)	215 (2.5)	228 (2.0)	252 (2.1)	274 (1.8)	295 (2.0)	313 (1.5)	324 (2.2)
Wyoming	272 (0.7)	225 (2.0)	236 (1.8)	253 (1.1)	273 (1.0)	291 (0.7)	308 (1.6)	318 (2.0)
TERRITORIES								
Guam	239 (1.4)	185 (1.7) >	197 (2.5)	216 (2.2)	239 (1.2)	262 (2.1)	283 (2.3)	296 (2.5)
Virgin Islands	222 (0.8)	175 (3.0)	186 (1.5)	203 (1.3)	222 (1.1)	241 (1.5)	258 (2.7)	268 (2.6)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

TABLE 3.9 | Percentiles of Proficiency in Geometry (continued)

PUBLIC SCHOOLS	Grade 8 - 1990							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	259 (1.4)	199 (2.5)	213 (2.0)	236 (1.7)	260 (1.2)	284 (1.4)	303 (1.9)	316 (4.1)
Northeast	268 (3.3)	210 (8.8)	225 (6.2)	246 (3.9)	270 (2.5)	290 (4.8)	309 (2.3)	321 (3.6)
Southeast	251 (2.8)	191 (4.6)	204 (5.7)	227 (4.0)	251 (2.9)	275 (2.4)	295 (3.3)	307 (5.7)
Central	261 (2.7)	206(11.9)	218 (5.2)	239 (4.3)	263 (3.5)	285 (1.7)	302 (2.6)	314 (2.7)
West	260 (2.6)	200 (2.5)	213 (2.3)	236 (2.6)	261 (2.1)	284 (3.8)	305 (4.4)	319 (6.9)
STATES								
Alabama	249 (1.3)	194 (1.9)	206 (2.3)	226 (1.4)	249 (1.4)	273 (1.6)	293 (1.8)	306 (1.6)
Arizona	256 (1.3)	203 (3.0)	215 (1.9)	235 (1.5)	257 (1.7)	278 (1.4)	297 (2.0)	308 (1.8)
Arkansas	253 (0.9)	198 (2.6)	212 (1.5)	232 (1.5)	254 (0.9)	275 (1.4)	294 (1.5)	305 (2.4)
California	256 (1.3)	196 (2.1)	210 (1.7)	232 (1.6)	256 (2.0)	280 (1.7)	301 (1.5)	313 (1.6)
Colorado	266 (1.1)	213 (1.8)	226 (1.8)	245 (1.4)	266 (1.2)	287 (0.9)	305 (1.2)	315 (1.2)
Connecticut	266 (1.1)	205 (2.0)	220 (2.0)	243 (1.3)	267 (1.4)	291 (1.2)	312 (2.0)	324 (1.6)
Delaware	256 (1.1)	198 (2.4)	212 (2.4)	233 (1.7)	257 (1.1)	279 (1.0)	300 (2.7)	313 (2.0)
Dist. Columbia	229 (1.1)	176 (2.4)	187 (2.5)	207 (1.6)	228 (1.3)	250 (1.2)	271 (1.7)	286 (4.1)
Florida	251 (1.3)	190 (2.7)	204 (2.6)	227 (2.0)	252 (1.3)	276 (2.1)	296 (1.6)	309 (1.8)
Georgia	257 (1.4)	199 (2.1)	211 (1.6)	232 (1.6)	257 (1.9)	282 (2.1)	302 (2.8)	316 (2.0)
Hawaii	252 (0.7)	191 (1.2)	204 (1.3)	226 (1.2)	252 (0.9)	277 (1.4)	302 (1.8)	313 (1.7)
Idaho	269 (1.1)	221 (3.7)	232 (1.2)	250 (1.5)	270 (1.1)	288 (1.9)	305 (1.1)	315 (1.1)
Indiana	264 (1.2)	213 (2.4)	225 (2.2)	243 (1.5)	265 (1.3)	285 (1.2)	304 (2.0)	316 (2.4)
Iowa	274 (1.3)	223 (1.7)	234 (1.6)	254 (1.6)	275 (1.2)	295 (1.6)	314 (2.4)	325 (2.9)
Kentucky	253 (1.3)	201 (2.9)	212 (2.4)	232 (1.7)	253 (1.9)	275 (1.3)	294 (1.3)	306 (1.9)
Louisiana	243 (1.3)	185 (3.5)	199 (1.6)	220 (2.5)	243 (1.3)	266 (1.4)	286 (1.9)	297 (2.5)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	257 (1.5)	196 (3.0)	209 (2.3)	231 (2.2)	257 (1.4)	282 (1.7)	304 (3.0)	316 (2.9)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	261 (1.2)	207 (1.8)	219 (1.5)	239 (1.6)	262 (1.3)	283 (1.5)	303 (1.6)	315 (1.6)
Minnesota	272 (1.0)	216 (1.4)	230 (2.0)	251 (1.5)	273 (1.2)	294 (1.0)	313 (1.4)	325 (1.6)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	273 (1.2)	218 (4.0)	231 (2.5)	253 (1.5)	275 (1.0)	295 (1.0)	313 (1.6)	323 (1.4)
New Hampshire	271 (1.0)	220 (3.0)	232 (1.8)	251 (1.5)	272 (1.3)	292 (1.1)	311 (2.0)	322 (2.1)
New Jersey	266 (1.2)	208 (2.0)	220 (2.6)	243 (1.3)	266 (1.6)	290 (1.6)	310 (2.0)	323 (2.3)
New Mexico	257 (0.7)	208 (2.1)	219 (1.4)	237 (1.3)	257 (0.9)	277 (1.1)	295 (1.1)	305 (2.2)
New York	260 (1.5)	195 (3.2)	210 (4.3)	236 (2.6)	260 (1.6)	285 (1.4)	309 (2.4)	323 (2.1)
North Carolina	249 (1.1)	193 (1.5)	205 (1.4)	226 (1.4)	249 (1.1)	273 (1.6)	293 (2.2)	305 (1.6)
North Dakota	278 (1.3)	227 (2.8)	239 (2.3)	258 (1.4)	278 (2.0)	298 (1.6)	315 (2.2)	326 (3.0)
Ohio	260 (1.1)	205 (1.8)	218 (1.3)	239 (1.0)	261 (1.3)	282 (1.0)	302 (2.2)	314 (2.4)
Oklahoma	260 (1.4)	206 (2.2)	219 (1.5)	238 (1.4)	260 (1.7)	281 (1.4)	301 (1.6)	313 (2.5)
Pennsylvania	263 (1.7)	204 (4.9)	219 (3.5)	241 (1.9)	264 (1.7)	286 (2.0)	305 (1.5)	317 (2.2)
Rhode Island	256 (0.9)	199 (3.6)	212 (1.4)	233 (2.0)	256 (0.9)	279 (0.9)	300 (1.9)	313 (2.7)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	258 (1.4)	202 (2.1)	215 (3.5)	235 (1.4)	258 (1.6)	281 (1.3)	301 (1.7)	314 (2.4)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	261 (1.6)	204 (2.3)	215 (2.2)	236 (1.4)	259 (1.3)	285 (2.8)	309 (3.6)	323 (3.3)
West Virginia	254 (1.0)	202 (1.5)	213 (1.3)	233 (1.1)	254 (1.1)	275 (1.5)	295 (1.4)	307 (1.9)
Wisconsin	272 (1.5)	216 (2.3)	228 (2.2)	250 (1.8)	274 (1.6)	295 (1.7)	314 (2.5)	325 (1.7)
Wyoming	270 (0.7)	222 (1.5)	233 (1.4)	251 (0.8)	271 (1.1)	290 (1.1)	306 (1.8)	316 (1.5)
TERRITORIES								
Guam	236 (1.1)	178 (1.5)	189 (1.8)	211 (1.6)	237 (1.5)	262 (1.1)	283 (2.4)	294 (2.6)
Virgin Islands	223 (1.3)	177 (1.9)	187 (1.8)	204 (2.0)	224 (1.3)	241 (2.1)	258 (2.4)	267 (3.1)

(xxx) Did not participate in the 1990 Trial State Assessment.

State Performance in Data Analysis, Statistics, and Probability

The fourth content area assessed as part of the 1992 NAEP mathematics cycle was data analysis, statistics, and probability. FIGURE 3.10 displays the results from the state-by-state consideration of student performance at grade 4 for this content area. The distribution of performance here is very similar to that displayed in FIGURE 1.5 for overall performance in mathematics, even though this content dimension is perhaps the newest area of study added to the elementary school mathematics curriculum.

The same 10 states as for overall mathematics proficiency are in the top group, with the addition of Pennsylvania. One also could add the states of Wyoming, Virginia, and Missouri to the top group, because the only state the latter three have any significant difference with is Maine.

FIGURE 3.11 displays the state patterns of average proficiency for the content area of data analysis for grade 8 students. As in the other content areas, there is considerable similarity between this graph and the one shown for overall grade 8 mathematics performance in FIGURE 1.6. The same seven states form the top group in the upper left hand corner of the graph. Average proficiency in data analysis for these seven states did not differ statistically.

TABLE 3.10 contains the state-by-state percentile distributions for data analysis, statistics, and probability performance at grades 4 and 8. The grade 8 trends in average proficiency reveal significant improvement across jurisdictions for the District of Columbia, Hawaii, Minnesota, New Hampshire, North Carolina, Rhode Island, Guam, and the Virgin Islands. Hawaii, North Carolina, and Guam showed increases for the lower part of the distribution for this content area -- 5th, 10th, and 25th percentiles. Colorado and Minnesota had improvement for the higher end of their distributions at the 75th, 90th, and 95th percentiles. The Virgin Islands showed increases at the 5th, 10th, 25th, 50th, and 75th percentiles.

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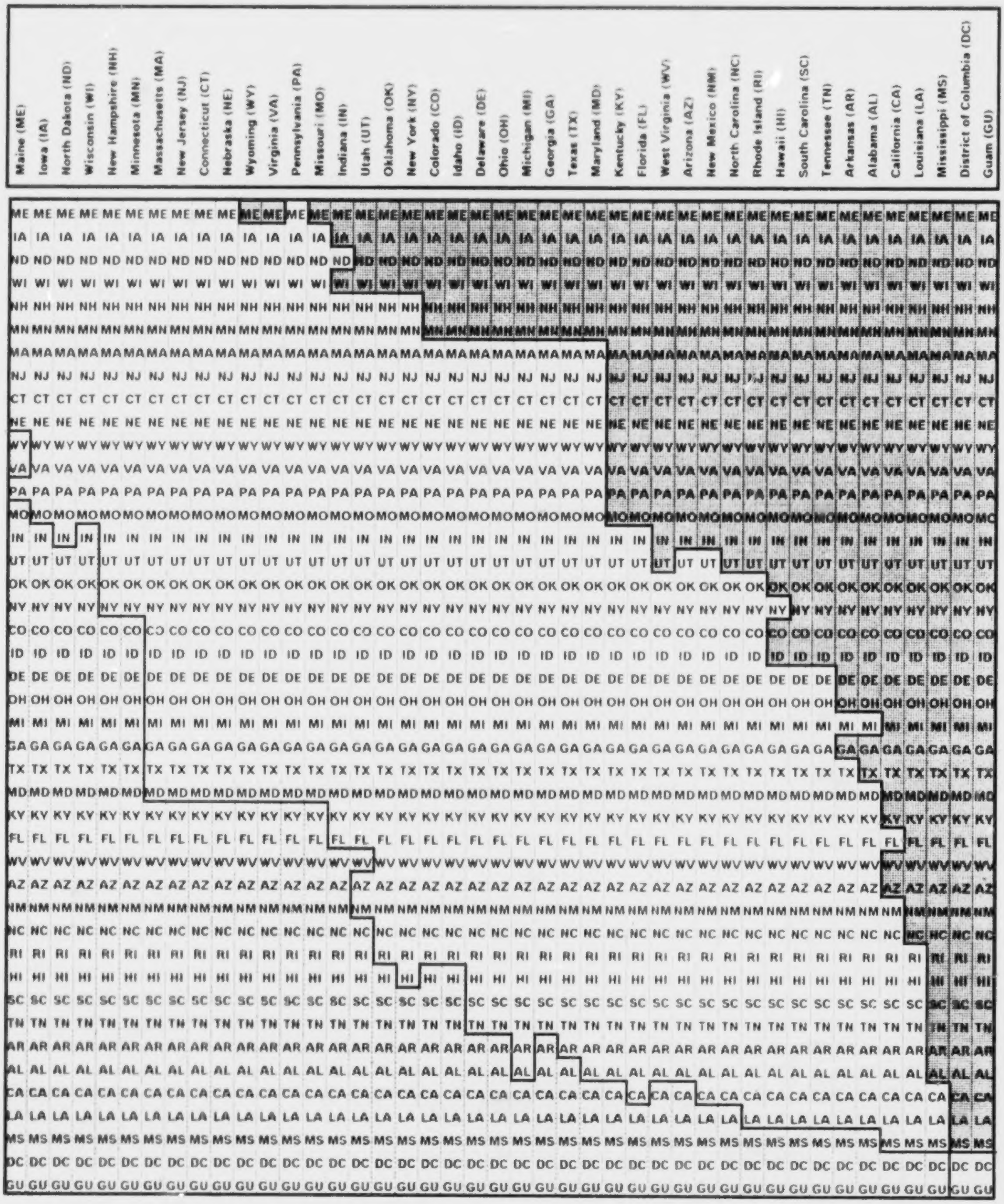
FIGURE 3.10

Comparisons of Data Analysis, Statistics, and Probability Average Proficiency 1992 Grade 4

INSTRUCTIONS: Read *down* the column directly under a state name listed in the heading at the top of the chart. Match the shading intensity surrounding a state postal abbreviation to the key below to determine whether the average mathematics performance of this state is higher than, the same as, or lower than the state in the column heading.



▨ State has statistically significantly higher average proficiency than the state listed at the top of the chart.

☐ No statistically significant difference from the state listed at the top of the chart.

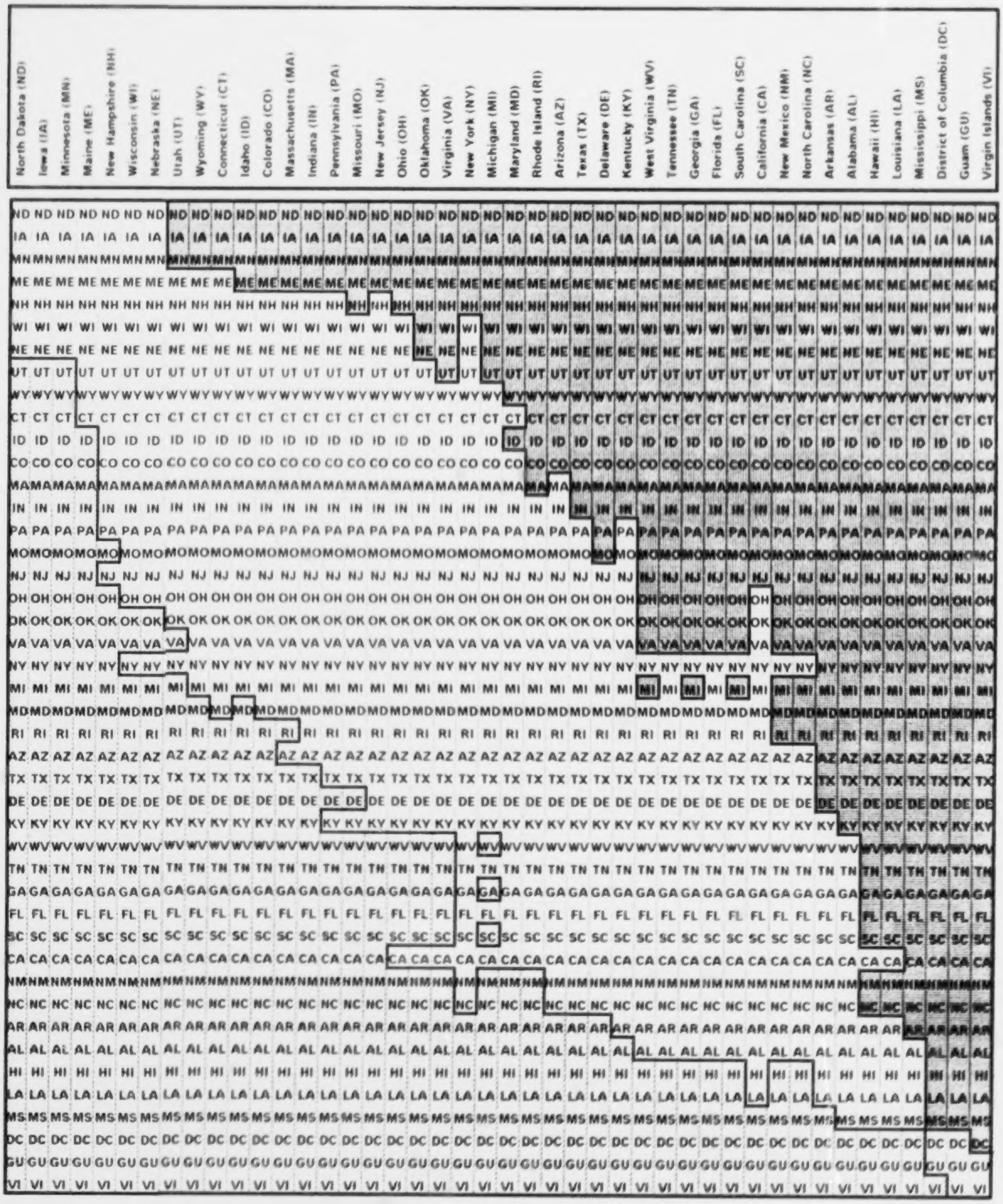
☐ State has statistically significantly lower average proficiency than the state listed at the top of the chart.

The between state comparisons take into account sampling and measurement error and that each state is being compared with every other state. Significance is determined by an application of the Bonferroni procedure based on 946 comparisons by comparing the difference between the two means with four times the square root of the sum of the squared standard errors.

FIGURE 3.11

Comparisons of Data Analysis, Statistics, and Probability Average Proficiency 1992 Grade 8

INSTRUCTIONS: Read *down* the column directly under a state name listed in the heading at the top of the chart. Match the shading intensity surrounding a state postal abbreviation to the key below to determine whether the average mathematics performance of this state is higher than, the same as, or lower than the state in the column heading.


North Dakota (ND)
Iowa (IA)
Minnesota (MN)
Maine (ME)
New Hampshire (NH)
Wisconsin (WI)
Nebraska (NE)
Utah (UT)
Wyoming (WY)
Connecticut (CT)
Idaho (ID)
Colorado (CO)
Massachusetts (MA)
Indiana (IN)
Pennsylvania (PA)
Missouri (MO)
New Jersey (NJ)
Ohio (OH)
Oklahoma (OK)
Virginia (VA)
New York (NY)
Michigan (MI)
Maryland (MD)
Rhode Island (RI)
Arizona (AZ)
Texas (TX)
Delaware (DE)
Kentucky (KY)
West Virginia (WV)
Tennessee (TN)
Georgia (GA)
Florida (FL)
South Carolina (SC)
California (CA)
New Mexico (NM)
North Carolina (NC)
Arkansas (AR)
Alabama (AL)
Hawaii (HI)
Louisiana (LA)
Mississippi (MS)
District of Columbia (DC)
Guam (GU)
Virgin Islands (VI)
ND
IA
MN
ME
NH
WI
NE
UT
WY
CT
ID
CO
MA
IN
PA
MO
NJ
OH
OK
VA
NY
MI
MD
RI
AZ
TX
DE
KY
WV
TN
GA
FL
SC
CA
NM
NC
AR
AL
HI
LA
MS
DC
GU
VI

▨ State has statistically significantly higher average proficiency than the state listed at the top of the chart.

☐ No statistically significant difference from the state listed at the top of the chart.

☐ State has statistically significantly lower average proficiency than the state listed at the top of the chart.

The between state comparisons take into account sampling and measurement error and that each state is being compared with every other state. Significance is determined by an application of the Bonferroni procedure based on 946 comparisons by comparing the difference between the two means with four times the square root of the sum of the squared standard errors.

TABLE 3.10 | Percentiles of Proficiency in Data Analysis, Statistics, and Probability

PUBLIC SCHOOLS	Grade 4 - 1992							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	218 (1.0)	160 (1.2)	173 (2.0)	196 (1.0)	220 (1.5)	242 (1.5)	260 (1.4)	270 (1.9)
Northeast	223 (2.3)	162 (2.7)	176 (3.3)	200 (2.9)	225 (3.9)	248 (4.1)	265 (3.2)	276 (3.4)
Southeast	210 (2.2)	154 (3.0)	166 (1.3)	187 (2.8)	211 (2.1)	233 (2.5)	252 (2.5)	264 (6.7)
Central	223 (2.3)	169 (5.3)	182 (3.9)	203 (3.0)	225 (2.5)	245 (2.7)	262 (1.8)	271 (2.4)
West	217 (1.9)	160 (2.1)	172 (2.5)	195 (2.7)	220 (2.9)	241 (1.7)	258 (3.5)	269 (3.2)
STATES								
Alabama	209 (1.7)	155 (1.9)	167 (2.5)	187 (1.9)	209 (2.8)	232 (1.4)	250 (1.4)	261 (2.2)
Arizona	214 (1.3)	160 (3.0)	172 (3.3)	193 (1.6)	216 (1.5)	236 (1.4)	253 (1.5)	263 (1.8)
Arkansas	211 (1.3)	156 (3.4)	169 (3.7)	190 (1.8)	212 (1.1)	233 (1.2)	250 (1.3)	260 (3.0)
California	206 (1.6)	137 (3.4)	153 (4.0)	181 (2.7)	208 (2.7)	233 (1.7)	254 (1.3)	265 (1.7)
Colorado	220 (1.2)	163 (3.2)	177 (2.6)	198 (1.9)	222 (0.9)	243 (0.9)	261 (1.5)	273 (2.3)
Connecticut	225 (1.7)	165 (4.0)	180 (3.4)	203 (1.8)	227 (1.8)	249 (1.9)	267 (2.4)	276 (3.0)
Delaware	219 (1.4)	167 (3.1)	178 (2.6)	197 (1.9)	220 (1.4)	241 (1.6)	260 (2.4)	271 (3.0)
Dist. Columbia	189 (0.9)	135 (1.5)	146 (1.6)	166 (1.4)	188 (1.3)	210 (1.7)	235 (1.6)	252 (2.7)
Florida	214 (1.5)	157 (5.1)	170 (2.5)	192 (2.4)	216 (1.6)	237 (1.5)	256 (1.7)	267 (2.9)
Georgia	218 (1.3)	165 (1.9)	176 (2.0)	197 (1.9)	219 (1.4)	241 (1.4)	259 (1.6)	269 (2.2)
Hawaii	212 (1.5)	155 (3.5)	168 (3.7)	190 (2.2)	213 (1.6)	235 (1.8)	254 (1.6)	264 (1.5)
Idaho	219 (1.0)	170 (2.6)	182 (2.0)	200 (1.9)	221 (1.3)	240 (0.8)	256 (1.7)	265 (1.1)
Indiana	222 (1.3)	174 (2.6)	184 (2.7)	203 (1.4)	222 (1.4)	242 (1.0)	258 (1.2)	268 (1.3)
Iowa	230 (1.0)	181 (1.8)	193 (1.3)	212 (1.2)	231 (0.9)	250 (1.6)	266 (1.6)	275 (1.4)
Kentucky	215 (1.4)	164 (2.5)	175 (2.0)	194 (1.6)	214 (1.6)	236 (1.9)	255 (2.1)	266 (1.6)
Louisiana	204 (1.8)	144 (2.6)	158 (4.0)	182 (3.4)	205 (1.7)	228 (2.0)	246 (1.4)	258 (1.6)
Maine	231 (1.3)	182 (3.4)	194 (2.4)	213 (1.4)	233 (2.3)	252 (1.4)	267 (1.4)	277 (2.4)
Maryland	217 (1.5)	157 (2.6)	170 (2.1)	193 (2.4)	219 (2.1)	243 (1.4)	262 (2.5)	273 (2.9)
Massachusetts	225 (1.5)	169 (2.1)	182 (1.6)	204 (2.0)	227 (1.3)	248 (1.5)	266 (1.5)	277 (1.6)
Michigan	218 (1.8)	159 (4.5)	175 (3.4)	199 (2.8)	221 (1.7)	241 (1.9)	257 (1.5)	266 (1.6)
Minnesota	227 (1.2)	174 (2.6)	187 (2.1)	208 (1.4)	229 (1.4)	248 (1.3)	264 (1.5)	273 (0.7)
Mississippi	199 (1.5)	143 (2.9)	155 (2.5)	176 (2.0)	199 (1.5)	222 (2.1)	242 (1.5)	253 (2.2)
Missouri	223 (1.4)	174 (2.4)	185 (2.0)	204 (1.8)	224 (1.5)	243 (2.8)	261 (1.8)	269 (2.4)
Nebraska	225 (1.7)	171 (3.5)	183 (3.0)	205 (1.7)	226 (2.1)	246 (1.8)	263 (2.1)	272 (2.0)
New Hampshire	229 (1.6)	177 (3.1)	189 (2.3)	208 (2.1)	229 (2.0)	250 (1.9)	268 (1.5)	278 (2.4)
New Jersey	225 (1.6)	170 (4.6)	183 (2.6)	204 (1.9)	227 (1.7)	247 (1.9)	265 (1.9)	274 (2.3)
New Mexico	214 (1.6)	163 (2.3)	174 (2.2)	193 (2.0)	214 (1.9)	234 (1.7)	252 (3.0)	263 (3.0)
New York	221 (1.6)	157 (4.0)	173 (2.9)	197 (2.0)	223 (1.3)	246 (1.6)	265 (2.2)	276 (1.9)
North Carolina	214 (1.3)	155 (2.7)	168 (1.6)	190 (2.1)	215 (1.6)	238 (0.9)	257 (1.8)	269 (2.4)
North Dakota	229 (1.3)	182 (3.0)	193 (2.0)	212 (1.5)	230 (1.0)	248 (1.5)	263 (1.3)	273 (1.7)
Ohio	218 (1.4)	165 (2.8)	178 (1.8)	198 (1.5)	220 (1.2)	240 (1.5)	258 (1.4)	268 (2.2)
Oklahoma	221 (1.5)	175 (1.8)	186 (3.0)	203 (1.5)	221 (1.5)	240 (1.3)	256 (2.2)	265 (2.7)
Pennsylvania	223 (1:5)	167 (3.0)	180 (1.5)	202 (1.9)	226 (1.7)	246 (1.7)	263 (1.5)	273 (1.5)
Rhode Island	213 (1.6)	153 (4.8)	168 (3.0)	191 (1.9)	215 (1.7)	236 (1.5)	254 (1.9)	266 (1.8)
South Carolina	211 (1.4)	157 (1.6)	169 (1.9)	188 (1.5)	211 (1.5)	234 (1.8)	254 (2.0)	265 (1.9)
Tennessee	211 (1.6)	156 (3.4)	168 (2.4)	189 (2.1)	212 (1.9)	234 (1.4)	251 (2.6)	262 (1.8)
Texas	218 (1.4)	168 (3.1)	179 (1.8)	198 (2.4)	219 (1.5)	239 (1.9)	256 (2.9)	266 (2.1)
Utah	221 (1.3)	170 (1.5)	183 (1.7)	202 (1.2)	223 (1.3)	242 (1.5)	258 (1.9)	268 (1.9)
Virginia	223 (1.3)	168 (2.6)	180 (2.0)	201 (1.5)	224 (1.8)	246 (1.7)	266 (2.3)	278 (4.3)
West Virginia	214 (1.2)	162 (1.9)	175 (1.4)	194 (1.0)	215 (1.2)	235 (1.4)	253 (1.5)	263 (1.9)
Wisconsin	229 (1.2)	179 (1.7)	191 (1.9)	211 (1.2)	231 (1.3)	248 (1.1)	264 (1.8)	273 (2.9)
Wyoming	224 (1.1)	177 (2.6)	189 (1.4)	207 (1.7)	225 (1.1)	243 (1.9)	259 (1.1)	267 (1.5)
TERRITORY								
Guam	189 (0.9)	130 (2.0)	143 (2.1)	166 (1.3)	190 (0.8)	213 (1.4)	235 (2.2)	247 (3.4)

The standard errors of the estimated proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample.

TABLE 3.10 | **Percentiles of Proficiency in Data Analysis, Statistics, and Probability (continued)**

PUBLIC SCHOOLS	Grade 8 - 1992							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	267 (1.2)	196 (1.8)	212 (1.3)	238 (1.4)	268 (1.4)	297 (1.6)	320 (1.9)	333 (2.6)
Northeast	269 (3.5)	198 (4.0)	213 (4.1)	238 (3.2)	268 (3.0)	300 (5.0)	326 (4.9)	340 (4.7)
Southeast	258 (1.7)	191 (4.5)	205 (2.6)	230 (2.7)	259 (1.8)	286 (2.4)	310 (2.3)	322 (2.5)
Central	274 (2.5)	206 (4.7)	222 (3.6)	248 (3.5)	276 (3.8)	302 (2.8)	323 (3.4)	335 (2.8)
West	267 (2.4)	195 (2.8)	211 (3.8)	238 (4.3)	269 (3.8)	298 (1.8)	321 (3.4)	335 (5.1)
STATES								
Alabama	250 (2.1)	184 (3.5)	198 (2.9)	222 (2.5)	250 (2.5)	279 (2.3)	304 (2.8)	319 (4.0)
Arizona	265 (1.7)	199 (3.2)	215 (4.0)	240 (1.8)	266 (1.9)	291 (1.6)	312 (2.1)	325 (2.6)
Arkansas	254 (1.5)	184 (2.8)	202 (1.9)	228 (1.6)	256 (1.8)	282 (1.2)	306 (2.3)	319 (2.2)
California	258 (2.2)	182 (3.7)	199 (4.6)	228 (2.5)	260 (2.5)	291 (2.5)	315 (2.1)	330 (5.5)
Colorado	274 (1.4)	207 (4.1)	223 (2.0)	249 (1.6)	276 (1.7)	301 (1.6) >	322 (1.7) >	333 (1.6) »
Connecticut	274 (1.5)	200 (3.5)	218 (4.2)	247 (2.4)	278 (2.1)	305 (1.5)	325 (1.8)	335 (2.5)
Delaware	262 (1.3)	191 (2.6)	209 (2.8)	235 (2.0)	263 (1.8)	291 (1.2)	316 (1.4)	330 (3.2)
Dist. Columbia	229 (1.2) >	164 (4.1)	177 (2.3)	201 (2.1)	228 (1.1)	255 (1.1)	280 (1.8)	295 (3.0)
Florida	259 (1.8)	185 (2.6)	202 (2.7)	230 (2.8)	261 (1.8)	289 (1.5)	312 (2.0)	325 (2.4)
Georgia	259 (1.6)	192 (2.8)	206 (3.3)	231 (1.8)	259 (1.7)	287 (2.5)	310 (2.0)	322 (2.1)
Hawaii	249 (1.5) >	176 (2.6) >	193 (2.0) >	220 (2.3) >	250 (1.3)	279 (1.9)	306 (3.0)	320 (2.6)
Idaho	274 (1.1)	214 (3.5)	228 (1.9)	251 (1.9)	275 (1.0)	298 (1.5)	318 (1.3)	329 (1.9)
Indiana	273 (1.5)	208 (4.1)	223 (2.7)	248 (1.4)	274 (2.3)	299 (1.6)	321 (1.6)	334 (2.7)
Iowa	285 (1.4)	225 (2.0)	239 (3.0)	262 (1.9)	286 (2.1)	309 (1.4) >	328 (2.0)	338 (2.9)
Kentucky	262 (1.8)	195 (3.0)	210 (1.9)	235 (1.7)	264 (1.9)	289 (2.5)	312 (2.0)	326 (3.2)
Louisiana	248 (1.9)	183 (2.6)	198 (2.9)	221 (1.8)	248 (1.5)	274 (2.9)	298 (3.1)	312 (3.3)
Maine	282 (1.4)	222 (2.4)	238 (2.6)	260 (2.1)	284 (1.4)	306 (2.1)	325 (1.8)	336 (2.1)
Maryland	266 (1.4)	193 (2.1)	209 (2.7)	237 (2.1)	268 (1.9)	298 (2.9)	321 (1.6)	334 (2.2)
Massachusetts	274 (1.5)	206 (5.0)	223 (1.7)	247 (2.0)	274 (2.3)	302 (2.0)	324 (1.9)	335 (2.8)
Michigan	268 (1.4)	199 (2.3)	216 (1.9)	243 (2.1)	269 (1.5)	295 (1.5)	316 (2.1)	328 (2.3)
Minnesota	284 (1.4) >	222 (2.5)	236 (2.0)	260 (2.8)	285 (1.6)	310 (1.5) »	330 (1.9) »	342 (2.7) >
Mississippi	243 (1.8)	174 (2.6)	188 (2.3)	214 (1.6)	243 (1.8)	273 (2.0)	299 (2.1)	314 (2.9)
Missouri	272 (1.6)	208 (3.0)	222 (2.3)	246 (2.3)	274 (1.8)	298 (1.2)	319 (2.1)	331 (2.5)
Nebraska	278 (1.7)	211 (2.7)	229 (2.6)	254 (1.6)	281 (2.0)	304 (2.0)	324 (1.8)	335 (3.1)
New Hampshire	281 (1.4) >	225 (2.1)	237 (1.9)	259 (1.3)	281 (1.7)	303 (1.7)	323 (2.1)	335 (4.2)
New Jersey	271 (2.1)	198 (4.9)	215 (3.4)	244 (3.8)	274 (3.8)	301 (2.7)	323 (2.0)	336 (1.8)
New Mexico	258 (1.4)	196 (4.6)	210 (2.7)	233 (1.7)	258 (1.1)	283 (1.2)	305 (2.3)	318 (3.6)
New York	268 (2.9)	183 (7.0)	206 (7.5)	239 (3.2)	272 (2.9)	300 (4.2)	324 (2.3)	338 (2.2)
North Carolina	258 (1.4) »	191 (2.4) »	205 (2.8) »	231 (2.4) »	258 (1.6)	285 (1.2)	309 (2.6)	324 (4.1)
North Dakota	286 (1.4)	233 (2.3)	244 (2.5)	265 (1.1)	287 (1.4)	308 (1.4)	325 (2.1)	336 (1.7)
Ohio	270 (2.1)	202 (3.8)	218 (2.2)	243 (2.4)	272 (3.2)	297 (3.7)	320 (2.4)	332 (2.1)
Oklahoma	269 (1.5)	206 (2.1)	220 (2.0)	245 (1.9)	270 (1.8)	294 (1.7)	315 (2.8)	327 (2.4)
Pennsylvania	273 (1.8)	206 (4.5)	221 (2.5)	247 (2.0)	275 (1.9)	300 (1.9)	322 (1.9) >	334 (2.6)
Rhode Island	266 (1.2) »	195 (2.4)	212 (2.2)	240 (1.0) »	268 (1.6) >	294 (1.9)	315 (2.9)	328 (2.2)
South Carolina	258 (1.4)	192 (3.1)	206 (2.2)	230 (1.3)	258 (1.8)	287 (2.4)	312 (2.7)	326 (2.5)
Tennessee	259 (1.6)	191 (2.9)	206 (2.8)	232 (1.7)	260 (1.6)	287 (1.7)	310 (2.1)	323 (3.3)
Texas	263 (1.6)	193 (2.6)	208 (1.8)	233 (1.8)	263 (1.9)	293 (2.2)	319 (2.3)	334 (4.8)
Utah	275 (1.1)	212 (3.4)	228 (2.8)	253 (1.6)	278 (1.5)	301 (1.5)	320 (1.4)	331 (1.9)
Virginia	268 (1.4)	199 (2.2)	214 (2.2)	239 (2.2)	269 (1.7)	297 (1.5)	321 (1.6)	335 (1.2)
West Virginia	260 (1.2)	200 (3.9)	214 (1.8)	236 (1.3)	260 (1.2)	285 (1.3)	304 (1.7)	316 (1.4)
Wisconsin	280 (2.1)	213 (3.1)	230 (4.0)	257 (2.8)	283 (1.5)	307 (2.6)	326 (3.1)	337 (3.3)
Wyoming	275 (1.3)	217 (3.2)	230 (2.0)	252 (2.1)	276 (1.5)	298 (1.0)	318 (1.4)	329 (2.1)
TERRITORIES								
Guam	221 (1.9) >	149 (3.7) »	163 (3.1) >	190 (3.1) >	219 (1.7)	253 (2.6)	282 (2.1)	301 (4.0)
Virgin Islands	214 (2.5) »	155 (4.0) >	168 (4.0) >	189 (2.9) »	214 (2.6) »	238 (2.3) »	260 (2.4)	273 (4.0)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

TABLE 3.10 | Percentiles of Proficiency in Data Analysis, Statistics, and Probability (continued)

PUBLIC SCHOOLS	Grade 8 - 1990							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	262 (1.6)	191 (2.3)	207 (3.1)	234 (2.0)	264 (1.4)	292 (1.4)	313 (1.6)	326 (1.8)
Northeast	273 (3.9)	207 (4.7)	224 (9.8)	248 (4.8)	275 (3.3)	300 (5.9)	320 (2.6)	332 (4.7)
Southeast	253 (3.2)	182 (9.1)	199 (4.7)	223 (4.8)	254 (3.2)	284 (2.6)	306 (5.3)	320 (4.2)
Central	265 (2.6)	197 (9.4)	213 (4.7)	239 (2.4)	268 (2.7)	293 (2.1)	312 (2.2)	324 (3.3)
West	261 (3.2)	189 (5.3)	206 (4.2)	232 (3.8)	263 (2.5)	290 (5.3)	313 (4.4)	328 (2.4)
STATES								
Alabama	251 (1.5)	186 (3.3)	199 (1.7)	224 (2.2)	252 (1.4)	279 (1.8)	303 (2.3)	316 (1.6)
Arizona	259 (1.9)	190 (2.9)	206 (1.8)	232 (2.6)	260 (2.2)	287 (1.9)	309 (1.6)	321 (4.5)
Arkansas	255 (1.1)	191 (1.5)	207 (1.4)	230 (2.2)	256 (1.2)	281 (1.5)	301 (1.3)	312 (3.3)
California	255 (1.6)	181 (1.9)	198 (2.3)	226 (2.3)	256 (1.2)	285 (1.5)	308 (2.7)	323 (4.2)
Colorado	270 (1.1)	209 (2.1)	224 (2.3)	247 (1.3)	272 (1.2)	294 (1.0)	313 (1.3)	324 (1.3)
Connecticut	271 (1.5)	202 (3.4)	221 (4.1)	247 (1.7)	274 (1.4)	299 (1.5)	320 (1.8)	331 (3.2)
Delaware	262 (1.5)	194 (3.1)	210 (2.1)	235 (1.5)	262 (1.8)	290 (2.2)	313 (2.4)	326 (3.4)
Dist. Columbia	223 (1.4)	157 (2.2)	171 (1.8)	194 (1.5)	221 (1.8)	250 (2.0)	278 (2.8)	296 (4.0)
Florida	255 (1.7)	184 (3.0)	199 (3.3	227 (3.4)	256 (3.1)	285 (2.6)	310 (1.7)	324 (1.9)
Georgia	260 (1.6)	190 (3.6)	205 (2.4)	231 (1.5)	261 (1.8)	290 (2.3)	314 (2.8)	330 (3.2)
Hawaii	243 (1.1)	162 (2.3)	180 (2.7)	209 (2.0)	244 (1.6)	278 (1.4)	306 (1.6)	320 (1.3)
Idaho	273 (0.8)	220 (2.3)	232 (1.5)	253 (1.2)	275 (0.7)	295 (1.7)	312 (1.3)	322 (1.8)
Indiana	269 (1.3)	209 (2.8)	222 (2.0)	245 (1.5)	270 (1.5)	294 (1.8)	315 (1.9)	326 (1.9)
Iowa	280 (1.2)	226 (1.7)	238 (1.4)	259 (1.2)	281 (1.0)	302 (1.4)	321 (1.7)	331 (2.9)
Kentucky	258 (1.3)	193 (3.0)	208 (1.8)	231 (2.0)	258 (1.5)	285 (1.3)	309 (1.7)	322 (2.6)
Louisiana	243 (1.6)	174 (1.6)	190 (2.2)	216 (1.6)	244 (1.7)	272 (1.8)	296 (2.0)	308 (3.1)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	261 (1.7)	193 (4.9)	208 (2.2)	233 (2.3)	263 (2.1)	290 (2.1)	313 (2.3)	325 (2.5)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	265 (1.7)	197 (2.8)	212 (2.3)	239 (1.9)	267 (2.1)	292 (2.3)	313 (2.1)	326 (2.4)
Minnesota	279 (1.1)	221 (3.7)	235 (2.4)	258 (1.3)	281 (1.3)	302 (1.0)	319 (1.2)	331 (1.9)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	278 (1.1)	216 (2.0)	232 (2.7)	256 (1.8)	280 (1.0)	302 (1.3)	322 (1.6)	332 (1.6)
New Hampshire	275 (1.2)	218 (2.8)	231 (2.3)	253 (1.8)	276 (1.3)	298 (1.3)	318 (1.9)	330 (2.1)
New Jersey	270 (1.4)	202 (3.1)	217 (1.9)	243 (2.5)	271 (2.7)	299 (1.7)	321 (2.0)	333 (2.7)
New Mexico	253 (1.3)	187 (2.1)	202 (1.3)	226 (1.5)	254 (1.4)	281 (1.5)	304 (1.7)	319 (2.8)
New York	263 (1.7)	183 (4.1)	204 (3.9)	234 (3.3)	265 (1.6)	293 (1.3)	318 (3.1)	333 (3.9)
North Carolina	248 (1.6)	178 (1.9)	193 (1.2)	218 (1.7)	249 (2.1)	279 (1.6)	302 (2.6)	315 (2.8)
North Dakota	285 (1.6)	230 (7.3)	245 (2.4)	266 (2.4)	287 (2.1)	306 (2.0)	324 (2.8)	336 (5.9)
Ohio	266 (1.1)	204 (1.8)	219 (1.5)	243 (1.3)	268 (1.2)	292 (1.3)	311 (1.7)	322 (2.3)
Oklahoma	264 (2.1)	202 (5.0)	217 (3.4)	240 (2.8)	265 (2.1)	289 (3.8)	311 (3.2)	323 (2.1)
Pennsylvania	268 (1.9)	204 (4.4)	219 (3.6)	244 (2.9)	269 (2.5)	293 (1.2)	313 (1.5)	325 (1.4)
Rhode Island	259 (0.7)	188 (2.0)	205 (1.3)	232 (1.1)	261 (0.9)	289 (1.1)	311 (1.3)	323 (2.4)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	257 (1.8)	188 (4.6)	203 (3.3)	229 (2.8)	257 (1.8)	286 (1.9)	311 (2.8)	324 (3.1)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	264 (1.9)	196 (1.5)	210 (1.5)	235 (1.8)	264 (1.9)	293 (2.6)	318 (2.9)	334 (3.9)
West Virginia	256 (1.6)	195 (2.5)	210 (3.4)	232 (1.9)	256 (1.7)	281 (1.9)	303 (2.2)	316 (4.1)
Wisconsin	277 (1.4)	213 (2.5)	229 (2.5)	254 (1.9)	279 (1.9)	302 (1.2)	321 (1.6)	332 (1.4)
Wyoming	273 (1.0)	222 (2.2)	234 (2.2)	253 (1.4)	274 (1.2)	294 (1.3)	311 (1.8)	322 (2.4)
TERRITORIES								
Guam	214 (1.2)	126 (3.2)	144 (3.6)	176 (2.0)	214 (2.0)	251 (1.9)	284 (2.4)	300 (3.5)
Virgin Islands	196 (2.0)	126 (6.0)	142 (6.3)	168 (2.4)	195 (2.7)	224 (2.0)	252 (3.0)	268 (2.4)

(xxx) Did not participate in the 1990 Trial State Assessment.

State Performance in Algebra and Functions

The fifth mathematics content area assessed was algebra and functions. The pattern of performance at grade 4 in FIGURE 3.12 displays a different picture of state-by-state achievement than that seen for the other content areas. The top-performing group expanded from 10 to 15 states to also include Wyoming, Pennsylvania, Utah, Missouri, and Indiana.

As shown in FIGURE 3.13, the pattern of performance in algebra and functions at grade 8 was similar to overall mathematics performance at that grade. Minnesota, Iowa, North Dakota, Nebraska, and Wisconsin formed the top group with New Hampshire, Idaho, Maine, and New Jersey also having performance similar to all of these except Minnesota.

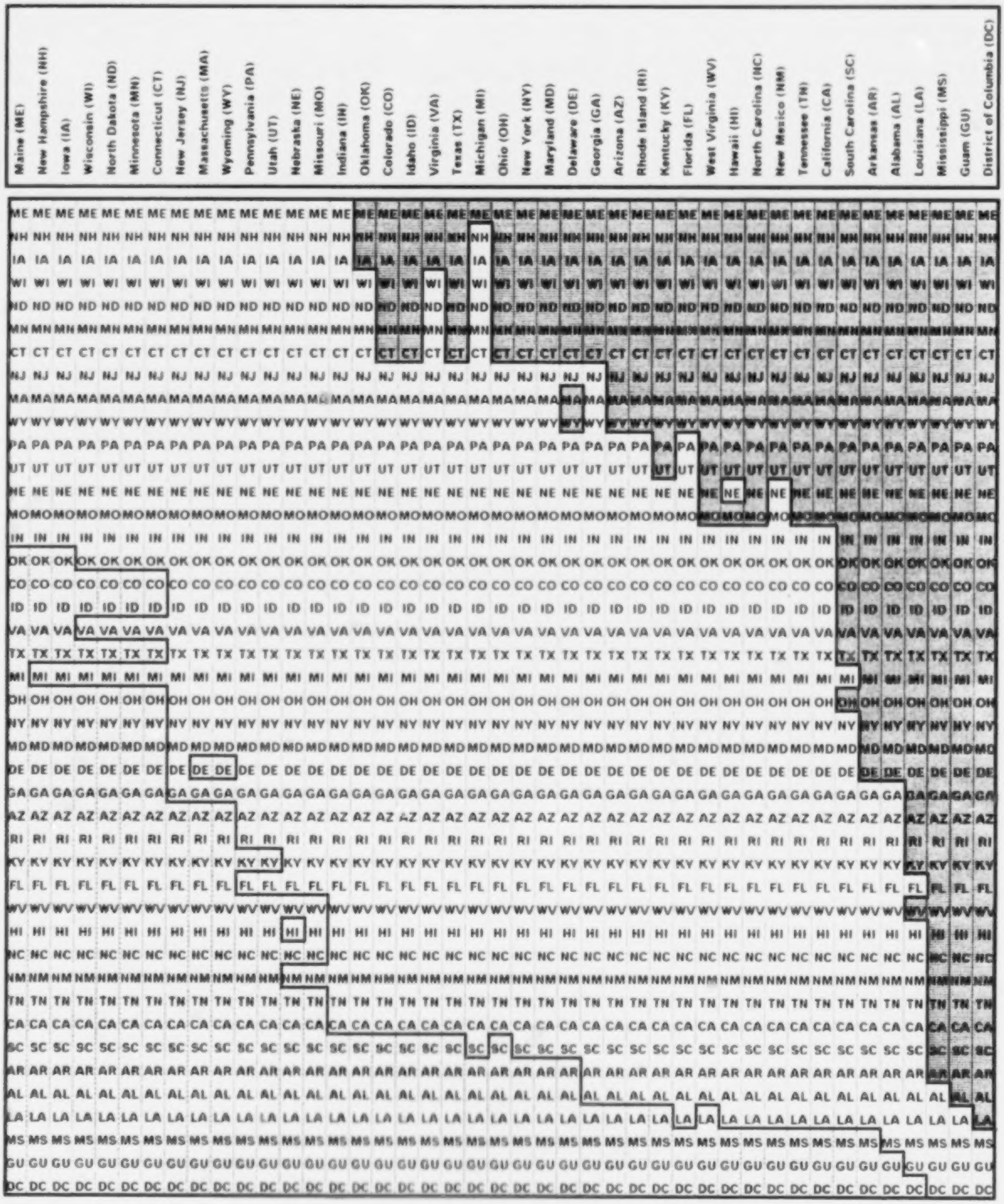
TABLE 3.11 contains the state-by-state percentile distributions for algebra and functions at grades 4 and 8. Viewing significant increases in performance across participating jurisdictions reveals improvement in algebra and functions by Arizona, Colorado, Hawaii, Idaho, Iowa, Minnesota, North Carolina, Rhode Island, Texas, and Guam. Five of the 37 states and territories showed growth in their performance at the 25th percentile, and six did at the 50th percentile.

FIGURE 3.12

Comparisons of Algebra and Functions Average Proficiency 1992 Grade 4

THE NATION'S REPORT CARD

INSTRUCTIONS: Read *down* the column directly under a state name listed in the heading at the top of the chart. Match the shading intensity surrounding a state postal abbreviation to the key below to determine whether the average mathematics performance of this state is higher than, the same as, or lower than the state in the column heading.


Maine (ME)
New Hampshire (NH)
Iowa (IA)
Wisconsin (WI)
North Dakota (ND)
Minnesota (MN)
Connecticut (CT)
New Jersey (NJ)
Massachusetts (MA)
Wyoming (WY)
Pennsylvania (PA)
Utah (UT)
Nebraska (NE)
Missouri (MO)
Indiana (IN)
Oklahoma (OK)
Colorado (CO)
Idaho (ID)
Virginia (VA)
Texas (TX)
Michigan (MI)
Ohio (OH)
New York (NY)
Maryland (MD)
Delaware (DE)
Georgia (GA)
Arizona (AZ)
Rhode Island (RI)
Kentucky (KY)
Florida (FL)
West Virginia (WV)
Hawaii (HI)
North Carolina (NC)
New Mexico (NM)
Tennessee (TN)
California (CA)
South Carolina (SC)
Arkansas (AR)
Alabama (AL)
Louisiana (LA)
Mississippi (MS)
Guam (GU)
District of Columbia (DC)

▨ State has statistically significantly higher average proficiency than the state listed at the top of the chart.

☐ No statistically significant difference from the state listed at the top of the chart.

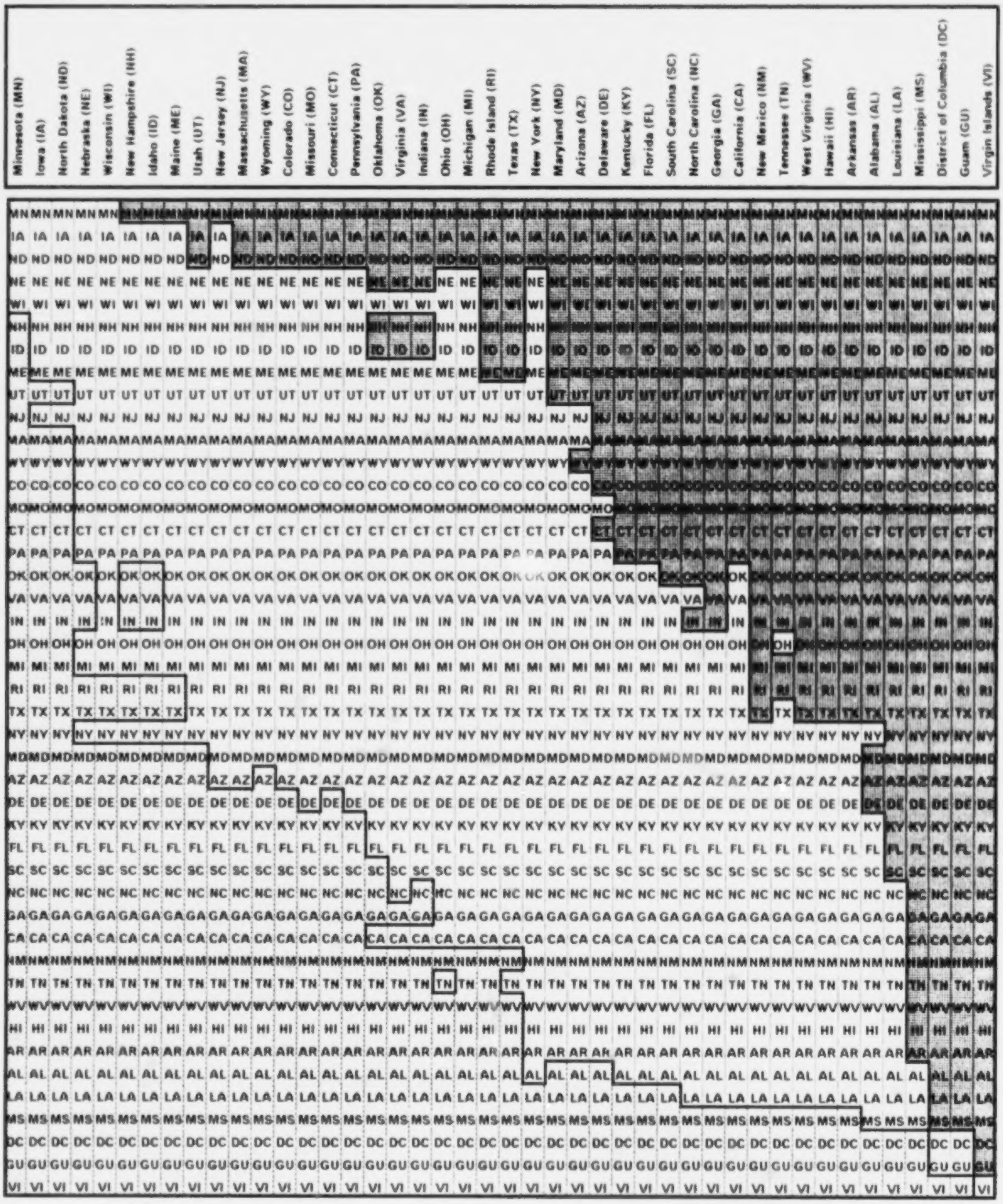
☐ State has statistically significantly lower average proficiency than the state listed at the top of the chart.

The between state comparisons take into account sampling and measurement error and that each state is being compared with every other state. Significance is determined by an application of the Bonferroni procedure based on 946 comparisons by comparing the difference between the two means with four times the square root of the sum of the squared standard errors.

FIGURE 3.13 | **Comparisons of Algebra and Functions Average Proficiency 1992 Grade 8**

THE NATION'S REPORT CARD naep

INSTRUCTIONS: Read *down* the column directly under a state name listed in the heading at the top of the chart. Match the shading intensity surrounding a state postal abbreviation to the key below to determine whether the average mathematics performance of this state is higher than, the same as, or lower than the state in the column heading.



▨ State has statistically significantly higher average proficiency than the state listed at the top of the chart.

☐ No statistically significant difference from the state listed at the top of the chart.

☐ State has statistically significantly lower average proficiency than the state listed at the top of the chart.

The between state comparisons take into account sampling and measurement error and that each state is being compared with every other state. Significance is determined by an application of the Bonferroni procedure based on 946 comparisons by comparing the difference between the two means with four times the square root of the sum of the squared standard errors.

TABLE 3.11 | Percentiles of Proficiency in Algebra and Functions

PUBLIC SCHOOLS	Grade 4 - 1992							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	216 (0.9)	158 (1.5)	171 (1.5)	193 (1.0)	217 (1.4)	239 (1.5)	258 (1.4)	269 (1.4)
Northeast	222 (2.2)	162 (2.3)	177 (2.2)	200 (3.0)	224 (3.4)	246 (3.9)	265 (3.0)	276 (3.4)
Southeast	208 (2.2)	149 (3.8)	162 (3.6)	183 (2.1)	207 (2.0)	229 (3.6)	250 (3.4)	262 (4.8)
Central	220 (2.1)	165 (4.6)	178 (3.3)	200 (3.9)	221 (2.3)	242 (3.1)	260 (1.5)	270 (2.2)
West	215 (1.9)	158 (3.1)	171 (2.8)	193 (1.4)	217 (3.2)	239 (3.6)	257 (3.4)	268 (2.7)
STATES								
Alabama	204 (1.8)	147 (2.8)	159 (2.8)	181 (1.8)	204 (1.8)	228 (2.6)	248 (2.1)	259 (3.2)
Arizona	213 (1.6)	160 (3.0)	171 (2.4)	191 (2.1)	213 (1.6)	235 (2.0)	254 (2.4)	265 (3.3)
Arkansas	206 (1.0)	152 (2.8)	163 (1.8)	184 (1.7)	207 (1.4)	228 (1.1)	247 (1.0)	258 (3.3)
California	208 (2.0)	149 (3.0)	162 (2.5)	185 (3.0)	210 (2.4)	232 (2.1)	251 (2.5)	263 (2.5)
Colorado	217 (1.3)	159 (3.1)	172 (1.6)	194 (2.0)	219 (1.5)	241 (1.7)	260 (1.2)	272 (2.0)
Connecticut	225 (1.4)	165 (2.9)	179 (2.2)	202 (2.1)	227 (2.0)	249 (1.9)	267 (1.4)	278 (1.1)
Delaware	215 (1.3)	157 (4.2)	169 (2.8)	190 (2.2)	214 (1.2)	239 (1.4)	261 (1.9)	273 (2.0)
Dist. Columbia	191 (0.7)	137 (2.7)	149 (1.7)	167 (1.3)	189 (0.7)	212 (1.9)	235 (1.9)	252 (2.1)
Florida	211 (2.3)	154 (2.3)	167 (3.1)	188 (2.6)	212 (2.1)	234 (2.3)	254 (3.8)	266 (4.1)
Georgia	213 (2.4)	151 (4.2)	166 (4.1)	189 (3.2)	214 (2.4)	239 (1.6)	261 (3.3)	273 (3.3)
Hawaii	210 (1.7)	150 (1.7)	164 (3.5)	187 (2.7)	211 (2.0)	235 (2.2)	255 (1.7)	266 (2.8)
Idaho	217 (1.2)	165 (2.2)	177 (1.3)	197 (1.7)	218 (1.5)	238 (1.4)	255 (2.5)	264 (1.7)
Indiana	218 (1.9)	168 (3.2)	179 (3.1)	197 (2.7)	218 (1.7)	239 (1.7)	258 (2.3)	269 (1.1)
Iowa	226 (1.4)	172 (2.2)	185 (1.1)	206 (1.4)	227 (1.4)	248 (1.2)	265 (1.9)	275 (1.8)
Kentucky	212 (1.5)	161 (2.4)	172 (2.8)	191 (1.8)	211 (1.5)	234 (1.7)	254 (1.8)	265 (2.1)
Louisiana	201 (2.0)	144 (5.3)	157 (3.6)	179 (2.6)	201 (1.7)	224 (2.1)	244 (2.6)	256 (3.3)
Maine	228 (1.8)	172 (5.3)	186 (4.5)	207 (1.5)	229 (1.7)	251 (1.6)	268 (1.6)	278 (3.9)
Maryland	215 (1.4)	155 (3.4)	169 (2.5)	191 (1.6)	216 (1.4)	240 (1.7)	260 (1.4)	271 (1.8)
Massachusetts	222 (1.4)	163 (2.9)	177 (1.6)	200 (1.9)	223 (1.4)	246 (1.6)	265 (2.4)	277 (2.3)
Michigan	216 (2.2)	155 (1.8)	171 (1.8)	194 (2.7)	218 (2.3)	240 (2.0)	258 (2.9)	267 (2.7)
Minnesota	225 (1.1)	167 (4.4)	181 (3.3)	204 (1.4)	226 (0.9)	247 (1.6)	266 (1.3)	276 (2.1)
Mississippi	195 (1.3)	137 (2.9)	150 (2.0)	171 (1.9)	195 (1.9)	219 (1.4)	241 (2.2)	252 (1.9)
Missouri	220 (1.3)	166 (2.4)	179 (1.7)	198 (1.3)	220 (1.3)	241 (1.4)	261 (1.3)	271 (2.4)
Nebraska	220 (1.7)	160 (2.9)	174 (2.2)	197 (1.9)	222 (2.2)	244 (2.3)	263 (2.6)	274 (1.9)
New Hampshire	227 (1.5)	172 (3.0)	184 (2.1)	205 (1.9)	227 (1.6)	249 (1.6)	268 (2.1)	279 (1.8)
New Jersey	224 (2.0)	162 (3.5)	177 (3.4)	201 (1.8)	226 (1.5)	249 (1.8)	268 (2.6)	279 (4.2)
New Mexico	210 (2.0)	156 (2.5)	168 (2.8)	188 (2.7)	210 (3.0)	232 (2.2)	252 (2.7)	264 (2.5)
New York	215 (1.7)	154 (3.6)	169 (3.9)	192 (2.7)	216 (1.4)	240 (2.4)	261 (2.6)	273 (3.5)
North Carolina	210 (1.4)	157 (2.7)	168 (1.6)	188 (1.6)	211 (1.6)	232 (1.7)	251 (1.3)	262 (1.4)
North Dakota	225 (1.2)	175 (1.9)	186 (2.0)	205 (2.0)	226 (1.2)	245 (1.2)	262 (1.7)	272 (2.6)
Ohio	216 (1.4)	157 (3.5)	171 (3.1)	193 (2.0)	217 (1.4)	240 (1.6)	260 (1.5)	272 (1.8)
Oklahoma	217 (1.5)	167 (2.5)	179 (2.0)	197 (2.1)	218 (1.8)	238 (2.2)	255 (2.6)	266 (3.0)
Pennsylvania	221 (1.4)	165 (2.9)	178 (2.4)	200 (2.3)	223 (2.0)	245 (2.0)	262 (1.4)	272 (1.8)
Rhode Island	212 (1.9)	153 (3.6)	168 (2.9)	191 (2.2)	213 (2.2)	236 (2.6)	255 (2.7)	266 (3.0)
South Carolina	207 (1.5)	147 (3.3)	160 (2.3)	182 (2.1)	206 (1.7)	232 (1.4)	255 (1.7)	268 (2.9)
Tennessee	209 (1.7)	156 (3.3)	167 (2.6)	188 (1.8)	209 (1.6)	230 (2.0)	249 (2.7)	260 (3.7)
Texas	216 (1.4)	162 (1.2)	175 (1.3)	195 (1.6)	217 (2.0)	238 (1.8)	257 (2.7)	269 (2.8)
Utah	221 (1.1)	165 (2.3)	179 (2.6)	200 (1.1)	222 (1.1)	243 (1.0)	262 (1.6)	272 (1.3)
Virginia	217 (1.6)	159 (2.2)	171 (2.6)	193 (1.8)	217 (2.2)	241 (2.3)	262 (2.5)	275 (2.9)
West Virginia	211 (1.4)	156 (1.7)	169 (1.7)	189 (2.0)	211 (1.9)	233 (1.7)	252 (2.8)	264 (2.4)
Wisconsin	225 (1.4)	171 (4.0)	184 (1.7)	205 (1.9)	227 (1.7)	247 (1.1)	265 (1.2)	276 (2.1)
Wyoming	222 (1.2)	171 (1.7)	183 (2.1)	202 (1.3)	222 (1.3)	242 (1.4)	260 (1.5)	269 (1.8)
TERRITORY								
Guam	192 (1.0)	134 (3.9)	146 (3.3)	168 (1.7)	192 (1.1)	216 (1.8)	238 (1.6)	249 (2.7)

The standard errors of the estimated proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample.

TABLE 3.11 | **Percentiles of Proficiency in Algebra and Functions (continued)**

PUBLIC SCHOOLS	Grade 8 - 1992							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	266 (1.1)	204 (1.6)	218 (1.5)	240 (1.3)	266 (1.3)	291 (1.4)	314 (2.1)	327 (2.4)
Northeast	266 (2.8)	203 (1.3)	216 (2.9)	239 (2.6)	266 (3.8)	294 (3.7)	319 (2.7)	333 (2.9)
Southeast	259 (1.3)	201 (5.3)	214 (2.1)	234 (1.2)	259 (2.4)	284 (2.5)	306 (2.5)	318 (3.2)
Central	272 (2.5)	213 (4.1)	226 (2.4)	249 (2.7)	273 (3.7)	296 (3.0)	316 (2.6)	327 (3.2)
West	266 (2.6)	202 (2.4)	217 (2.3)	240 (2.7)	266 (2.9)	291 (1.9)	314 (4.9)	329 (5.4)
STATES								
Alabama	253 (1.9)	193 (3.0)	206 (2.5)	228 (1.9)	252 (1.9)	278 (1.9)	300 (2.1)	313 (2.8)
Arizona	264 (1.5) >	208 (2.0)	221 (2.6) >	242 (1.5) >	264 (1.8)	286 (1.5)	305 (1.4)	317 (1.8)
Arkansas	255 (1.5)	196 (2.1)	209 (1.9)	231 (1.6)	255 (1.9)	279 (1.7)	301 (2.5)	314 (2.0)
California	258 (2.2)	191 (2.5)	206 (2.6)	231 (2.5)	259 (1.6)	286 (2.0)	309 (1.9)	321 (3.9)
Colorado	270 (1.1) >	213 (2.1)	225 (2.1)	248 (1.8)	272 (1.4)	294 (1.0)	313 (1.2)	323 (1.4)
Connecticut	270 (1.4)	205 (4.2)	220 (3.0)	245 (1.5)	272 (1.5)	297 (1.6)	317 (2.6)	328 (2.3)
Delaware	263 (1.3)	200 (2.3)	214 (3.4)	238 (1.7)	262 (1.3)	288 (1.8)	311 (1.7)	324 (3.9)
Dist. Columbia	237 (1.1)	169 (2.9)	185 (1.4)	208 (1.8)	236 (2.1)	263 (1.9)	291 (3.4)	307 (5.2)
Florida	260 (1.6)	196 (3.3)	211 (4.2)	234 (2.8)	261 (2.4)	287 (2.4)	310 (2.0)	323 (1.9)
Georgia	259 (1.4)	198 (4.2)	211 (2.8)	234 (2.3)	260 (2.1)	284 (1.6)	306 (2.7)	317 (1.3)
Hawaii	256 (1.1) »	191 (2.0)	206 (2.7)	229 (1.2) »	256 (1.1) »	284 (1.8)	308 (1.5)	323 (2.2)
Idaho	274 (0.9) >	219 (2.0)	232 (1.5)	253 (1.2)	275 (0.9)	296 (1.1)	314 (0.9)	324 (1.9)
Indiana	267 (1.3)	208 (3.8)	222 (1.9)	244 (1.5)	267 (1.2)	291 (2.2)	312 (2.7)	324 (3.2)
Iowa	280 (1.2) >	229 (2.7)	240 (2.2)	259 (1.2)	280 (1.2)	301 (1.5)	318 (1.1)	328 (2.5)
Kentucky	260 (1.4)	199 (3.1)	213 (2.6)	237 (2.0)	262 (1.5) >	284 (1.5)	307 (2.2)	319 (2.7)
Louisiana	249 (1.9)	191 (2.8)	204 (2.4)	226 (2.2)	250 (2.2)	273 (1.9)	295 (2.2)	306 (3.2)
Maine	274 (1.2)	221 (2.7)	233 (2.4)	254 (1.7)	274 (1.1)	295 (0.9)	314 (1.7)	325 (1.9)
Maryland	264 (1.6)	197 (3.1)	211 (2.5)	236 (2.2)	265 (1.9)	293 (2.6)	316 (2.0)	328 (1.5)
Massachusetts	271 (1.4)	214 (1.5)	227 (1.3)	248 (1.7)	273 (1.9)	297 (1.7)	315 (1.9)	326 (2.1)
Michigan	267 (1.6)	204 (3.9)	218 (2.4)	242 (1.5)	268 (1.8)	292 (2.6)	313 (2.7)	325 (2.3)
Minnesota	281 (1.1) »	224 (2.8)	238 (2.1)	259 (2.4)	282 (1.6) >	304 (1.3) »	323 (1.9)	335 (1.9)
Mississippi	245 (1.6)	182 (2.2)	196 (2.1)	219 (1.6)	245 (1.7)	271 (1.8)	293 (2.5)	307 (4.1)
Missouri	270 (1.4)	215 (2.6)	228 (1.4)	248 (1.6)	271 (2.1)	292 (1.6)	312 (1.3)	324 (1.8)
Nebraska	275 (1.5)	216 (4.5)	232 (1.8)	254 (1.4)	277 (2.1)	299 (2.3)	317 (2.4)	328 (2.3)
New Hampshire	274 (1.0)	221 (1.9)	234 (2.1)	253 (1.2)	275 (1.2)	296 (1.4)	315 (1.6)	325 (1.8)
New Jersey	272 (1.8)	209 (4.2)	223 (3.9)	247 (2.3)	273 (1.5)	298 (1.6)	319 (2.4)	331 (3.8)
New Mexico	257 (1.1)	202 (3.1)	214 (1.9)	235 (1.4)	258 (1.2)	280 (1.4)	300 (1.9)	312 (2.7)
New York	265 (2.4)	196 (4.7)	213 (5.7)	241 (3.1)	267 (1.9)	291 (2.0)	313 (2.6)	325 (2.9)
North Carolina	259 (1.5) »	197 (4.7)	211 (2.1) >	234 (1.9) >	259 (1.4) >	284 (1.2)	307 (1.9)	319 (2.5)
North Dakota	279 (1.2)	230 (2.2)	241 (1.9)	260 (1.6)	280 (1.6)	299 (2.1)	316 (1.6)	326 (2.5)
Ohio	267 (1.8)	209 (2.5)	222 (3.0)	244 (2.4)	267 (1.9)	290 (1.9)	310 (2.3)	322 (2.2)
Oklahoma	267 (1.3)	210 (3.9)	224 (2.7)	246 (1.7)	268 (1.4)	290 (1.5)	309 (1.9)	320 (2.4)
Pennsylvania	270 (1.5)	209 (3.3)	223 (2.5)	246 (2.3)	271 (1.9)	295 (2.0)	315 (2.0)	326 (3.5)
Rhode Island	266 (1.3) >	208 (2.3) >	221 (2.1) >	243 (1.6) >	267 (1.7)	289 (1.9)	309 (2.5)	320 (1.6)
South Carolina	259 (1.3)	200 (1.7)	213 (1.8)	233 (1.7)	258 (1.5)	285 (1.0)	308 (2.1)	322 (2.5)
Tennessee	257 (1.7)	199 (4.5)	212 (3.5)	233 (2.1)	257 (2.1)	281 (2.0)	301 (2.3)	313 (2.1)
Texas	266 (1.4) »	203 (2.9)	217 (2.4)	239 (1.8) >	266 (1.8) >	291 (1.9)	315 (2.0) >	327 (3.4)
Utah	272 (1.0)	217 (2.1)	229 (1.9)	250 (1.6)	273 (1.3)	296 (1.2)	314 (1.6)	325 (1.7)
Virginia	267 (1.4)	205 (3.8)	219 (1.6)	241 (1.5)	267 (1.7)	292 (1.8)	315 (1.8)	328 (2.2)
West Virginia	257 (1.3)	201 (2.2)	213 (1.9)	234 (2.3)	257 (1.8)	280 (1.2)	300 (1.5)	311 (2.2)
Wisconsin	275 (1.6)	215 (2.3)	229 (2.5)	253 (2.6)	277 (1.8)	299 (1.9)	317 (1.6)	328 (1.8)
Wyoming	271 (1.2)	220 (1.5)	232 (2.1)	250 (1.2)	271 (1.2)	292 (1.2)	312 (1.8)	324 (2.0)
TERRITORIES								
Guam	235 (1.1) >	167 (2.0)	181 (3.0)	206 (1.7)	235 (1.4) >	264 (1.5) »	291 (2.0) >	305 (2.3)
Virgin Islands	221 (1.2)	161 (2.8)	176 (2.1)	197 (1.7)	222 (1.1)	245 (1.4)	267 (1.7)	281 (3.0)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

TABLE 3.11 | Percentiles of Proficiency in Algebra and Functions (continued)

PUBLIC SCHOOLS	Grade 8 - 1990							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	260 (1.3)	199 (1.9)	212 (2.6)	235 (1.7)	261 (1.5)	286 (1.6)	308 (2.6)	322 (2.7)
Northeast	268 (3.3)	210 (5.4)	223 (4.8)	244 (5.1)	268 (4.8)	292 (4.8)	311 (3.1)	323 (5.5)
Southeast	256 (2.4)	195 (5.8)	207 (4.4)	229 (2.9)	254 (2.7)	282 (4.5)	305 (5.6)	319 (3.3)
Central	262 (2.4)	203 (5.5)	215 (5.1)	238 (2.6)	263 (3.8)	286 (2.4)	304 (3.6)	317 (5.8)
West	259 (2.6)	196 (4.2)	210 (1.8)	234 (2.4)	259 (2.2)	285 (2.9)	310 (4.9)	325 (3.2)
STATES								
Alabama	252 (1.3)	193 (2.1)	205 (1.9)	227 (2.3)	252 (1.4)	276 (1.3)	298 (1.4)	310 (1.4)
Arizona	258 (1.5)	196 (3.5)	210 (1.3)	233 (2.1)	258 (2.4)	283 (1.7)	306 (1.9)	319 (1.7)
Arkansas	253 (1.1)	196 (1.8)	209 (1.2)	230 (1.2)	253 (1.4)	276 (1.2)	296 (1.7)	309 (2.0)
California	256 (1.3)	193 (1.9)	207 (2.3)	230 (1.0)	256 (2.1)	283 (2.1)	306 (2.3)	319 (3.9)
Colorado	266 (1.0)	205 (1.6)	220 (1.5)	243 (1.4)	267 (1.5)	290 (1.1)	310 (1.2)	323 (1.8)
Connecticut	268 (1.5)	206 (4.9)	220 (2.2)	243 (1.7)	269 (1.6)	294 (1.7)	315 (1.7)	328 (2.5)
Delaware	259 (1.0)	197 (5.4)	211 (2.3)	233 (1.1)	259 (1.8)	286 (1.4)	307 (2.2)	320 (3.7)
Dist. Columbia	235 (1.1)	179 (1.7)	191 (1.5)	211 (1.7)	234 (1.3)	258 (1.8)	281 (1.7)	295 (2.0)
Florida	255 (1.5)	193 (1.8)	207 (4.1)	230 (2.5)	255 (1.4)	281 (1.4)	306 (2.1)	319 (2.3)
Georgia	257 (1.5)	193 (1.4)	206 (1.4)	230 (1.6)	258 (1.6)	285 (2.0)	308 (2.1)	322 (3.3)
Hawaii	249 (1.0)	183 (3.9)	196 (2.0)	220 (1.3)	248 (1.6)	279 (2.0)	303 (1.7)	316 (1.2)
Idaho	270 (0.9)	217 (2.1)	228 (1.7)	249 (1.1)	270 (1.0)	291 (1.4)	310 (1.6)	322 (1.7)
Indiana	265 (1.2)	208 (2.3)	220 (2.2)	242 (1.8)	265 (1.4)	289 (1.4)	309 (3.2)	324 (1.6)
Iowa	275 (1.2)	223 (2.0)	233 (1.8)	253 (1.6)	276 (1.4)	296 (1.7)	314 (1.0)	326 (2.6)
Kentucky	257 (1.3)	202 (3.0)	214 (2.4)	233 (2.7)	255 (1.2)	279 (2.0)	301 (2.1)	314 (1.5)
Louisiana	246 (1.5)	189 (2.4)	202 (1.8)	222 (1.7)	245 (1.9)	269 (1.7)	291 (2.0)	302 (1.5)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	262 (1.6)	196 (1.5)	209 (3.1)	234 (2.6)	264 (1.6)	292 (3.1)	314 (2.3)	328 (3.5)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	264 (1.3)	206 (1.9)	219 (1.7)	241 (1.7)	264 (1.4)	288 (2.3)	308 (1.6)	320 (2.1)
Minnesota	274 (1.1)	216 (2.8)	230 (1.7)	252 (1.0)	275 (1.2)	296 (1.0)	316 (1.5)	328 (1.6)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	273 (1.0)	214 (3.3)	229 (1.9)	251 (1.8)	275 (1.1)	296 (1.0)	315 (1.4)	328 (2.0)
New Hampshire	272 (1.0)	218 (2.6)	230 (2.3)	250 (1.6)	272 (1.1)	294 (1.9)	314 (2.3)	325 (2.3)
New Jersey	268 (1.4)	209 (2.4)	222 (1.3)	243 (2.2)	268 (1.8)	293 (1.0)	315 (3.1)	328 (3.0)
New Mexico	257 (0.9)	201 (1.6)	213 (1.0)	233 (1.3)	256 (0.8)	280 (1.2)	301 (1.6)	314 (1.3)
New York	260 (1.4)	199 (3.4)	214 (2.4)	237 (3.0)	261 (1.6)	285 (1.2)	305 (2.1)	319 (2.4)
North Carolina	251 (1.2)	190 (2.7)	203 (1.6)	225 (1.5)	252 (1.4)	278 (1.6)	300 (1.4)	312 (1.7)
North Dakota	275 (1.2)	224 (3.0)	236 (2.3)	257 (1.7)	277 (1.1)	295 (1.9)	312 (2.1)	322 (2.2)
Ohio	262 (1.0)	205 (1.4)	218 (1.1)	239 (1.8)	262 (1.4)	286 (1.6)	307 (1.2)	321 (2.0)
Oklahoma	262 (1.3)	210 (1.5)	222 (2.1)	241 (1.4)	262 (1.3)	284 (1.3)	304 (1.3)	315 (3.0)
Pennsylvania	265 (1.6)	205 (3.8)	219 (3.2)	242 (2.0)	266 (1.9)	290 (2.0)	310 (1.8)	320 (2.2)
Rhode Island	261 (0.9)	197 (1.9)	211 (1.5)	234 (1.5)	261 (1.4)	289 (1.4)	310 (1.0)	322 (3.7)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	256 (1.6)	196 (3.3)	208 (3.1)	231 (1.3)	256 (2.4)	282 (2.4)	305 (1.5)	318 (3.1)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	265 (1.6)	203 (1.7)	215 (1.4)	237 (2.2)	265 (1.2)	292 (3.4)	316 (2.9)	332 (4.1)
West Virginia	254 (1.1)	195 (2.0)	208 (1.3)	230 (1.1)	254 (0.9)	278 (1.2)	299 (1.1)	312 (2.0)
Wisconsin	271 (1.2)	213 (2.3)	227 (2.5)	248 (1.8)	271 (1.2)	294 (1.2)	313 (1.8)	325 (2.2)
Wyoming	270 (0.8)	217 (2.1)	229 (1.4)	249 (1.6)	270 (1.1)	292 (1.3)	312 (1.5)	323 (1.1)
TERRITORIES								
Guam	230 (1.0)	170 (3.0)	182 (2.7)	203 (1.6)	229 (1.2)	255 (1.3)	281 (2.2)	295 (2.8)
Virgin Islands	219 (1.5)	167 (2.2)	179 (2.8)	197 (1.5)	218 (1.8)	239 (2.3)	260 (2.8)	275 (3.0)

(xxx) Did not participate in the 1990 Trial State Assessment.

State Performance in Estimation

FIGURE 3.14 presents the grade 4 comparisons in average performance across participating jurisdictions for the estimation portion of the assessment. The results were parallel to those for overall performance, although Wyoming was among the top-performing states and New Jersey did have lower average proficiency than Minnesota.

The state-by-state estimation results for grade 8 are shown in FIGURE 3.15. Minnesota, North Dakota, and Iowa had similar average proficiency in estimation and comprised the top-performing states. Average proficiency in Wisconsin also was similar to that in North Dakota and Iowa.

TABLE 3.12 contains the percentiles for estimation for grades 4 and 8. Because estimation was not part of the 1990 Trial State Assessment Program, trend data are not available. However, the achievement level results for 1992 are presented in TABLE 3.13 for both grades 4 and 8. Paralleling the national findings, few students at either grades 4 or 8 attained the Advanced level of performance (from 0 to 3 percent). However, approximately 90 percent or more of the fourth graders in 27 of the participating jurisdictions were estimated to be at or above the Basic level, and in most states at least one-fifth of the students performed at or above the Proficient level. At grade 8, in general, it was estimated that from approximately one-half to three-fourths performed at or above the Basic level and from one-tenth to one-third reached the Proficient level.

FIGURE 3.14 | **Comparisons of Estimation Average Proficiency 1992 Grade 4**

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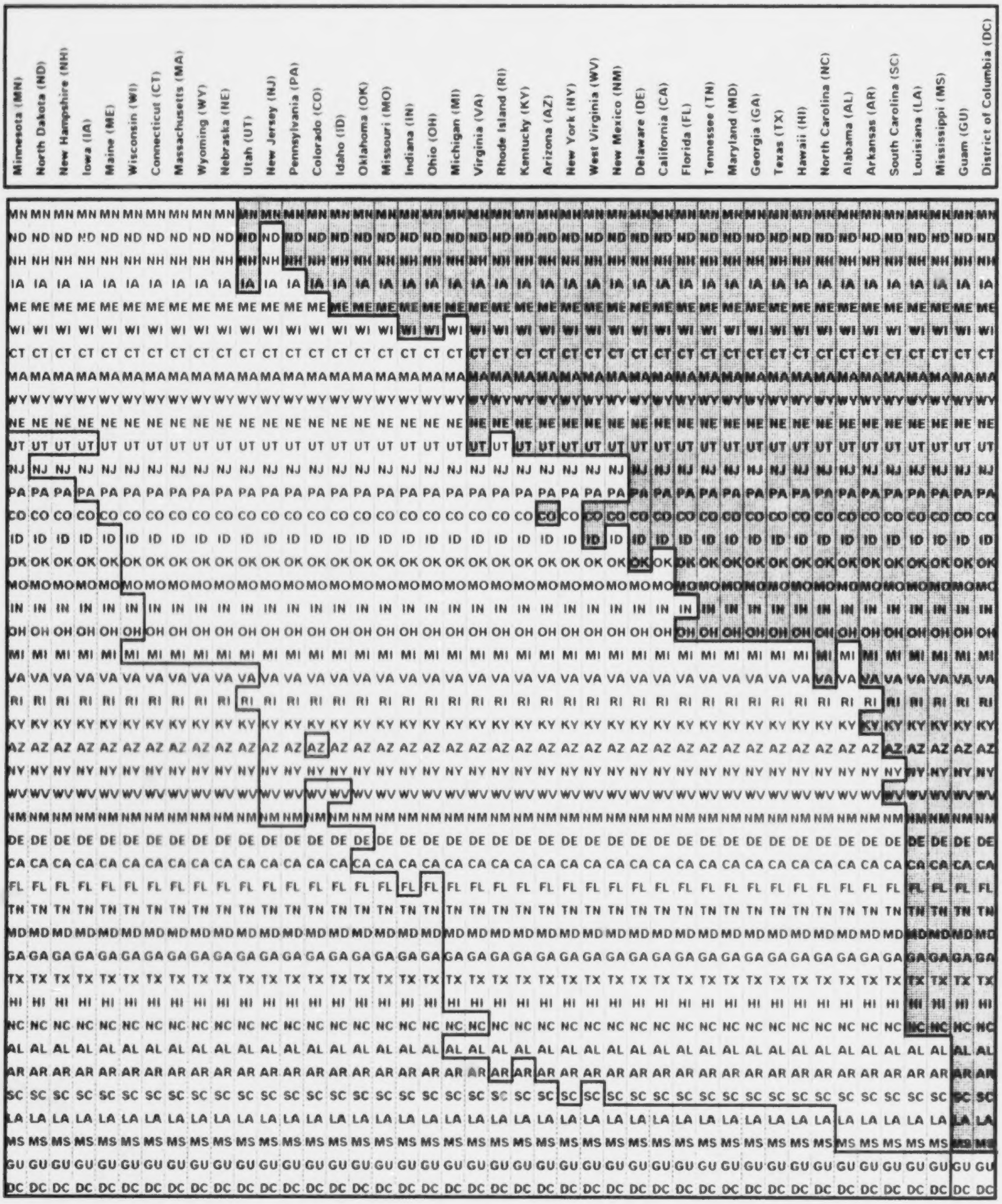
INSTRUCTIONS: Read *down* the column directly under a state name listed in the heading at the top of the chart. Match the shading intensity surrounding a state postal abbreviation to the key below to determine whether the average mathematics performance of this state is higher than, the same as, or lower than the state in the column heading.



▨ State has statistically significantly higher average proficiency than the state listed at the top of the chart.

☐ No statistically significant difference from the state listed at the top of the chart.

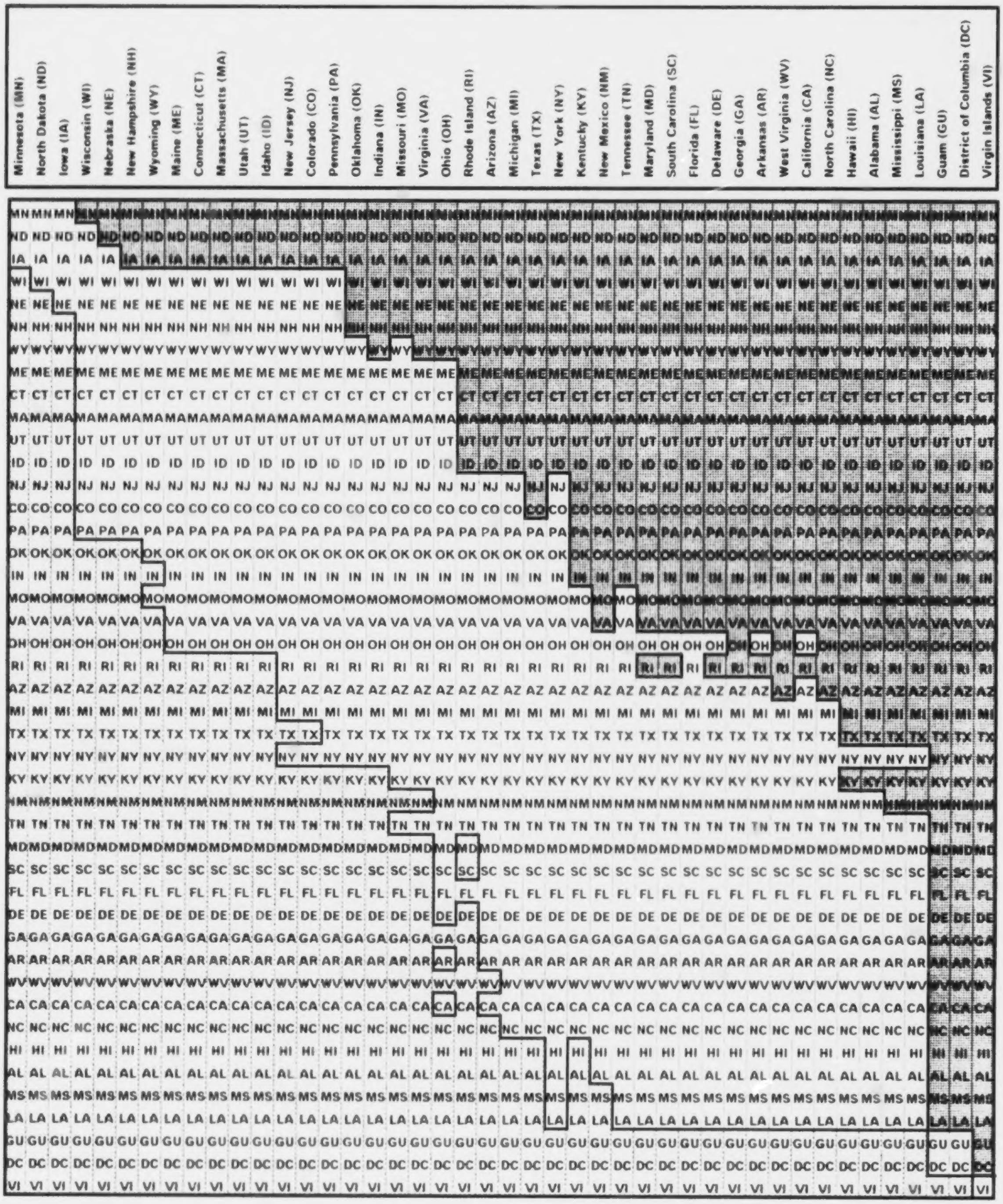
☐ State has statistically significantly lower average proficiency than the state listed at the top of the chart.

The between state comparisons take into account sampling and measurement error and that each state is being compared with every other state. Significance is determined by an application of the Bonferroni procedure based on 946 comparisons by comparing the difference between the two means with four times the square root of the sum of the squared standard errors.

THE NATION'S REPORT CARD

FIGURE 3.15 | Comparisons of Estimation Average Proficiency 1992 Grade 8

INSTRUCTIONS: Read *down* the column directly under a state name listed in the heading at the top of the chart. Match the shading intensity surrounding a state postal abbreviation to the key below to determine whether the average mathematics performance of this state is higher than, the same as, or lower than the state in the column heading.



▨ State has statistically significantly higher average proficiency than the state listed at the top of the chart.

☐ No statistically significant difference from the state listed at the top of the chart.

☐ State has statistically significantly lower average proficiency than the state listed at the top of the chart.

The between state comparisons take into account sampling and measurement error and that each state is being compared with every other state. Significance is determined by an application of the Bonferroni procedure based on 946 comparisons by comparing the difference between the two means with four times the square root of the sum of the squared standard errors.

TABLE 3.12 | Percentiles of Proficiency in Estimation

PUBLIC SCHOOLS	Grade 4 - 1992							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	206 (1.8)	144 (3.0)	157 (5.2)	182 (1.8)	207 (2.0)	232 (2.5)	252 (2.1)	263 (2.4)
Northeast	205 (6.8)!	138 (7.7)!	152 (7.5)!	177 (6.2)!	205(11.1)!	236 (9.0)!	256 (8.2)!	266 (7.6)!
Southeast	195 (3.9)	133(10.0)	146 (6.6)	170 (5.3)	196 (3.3)	220 (3.9)	243 (4.8)	254 (6.5)
Central	212 (4.3)	151(12.1)	164(11.0)	189 (6.4)	215 (5.8)	238 (4.8)	254 (3.9)	265 (4.5)
West	213 (3.5)	160 (6.6)	170 (9.4)	191 (3.2)	213 (4.0)	236 (3.3)	254 (6.0)	264 (6.0)
STATES								
Alabama	198 (1.9)	137 (3.3)	150 (2.6)	172 (2.3)	198 (1.6)	223 (1.8)	245 (2.3)	256 (2.0)
Arizona	205 (1.4)	146 (2.0)	159 (1.9)	181 (2.5)	206 (1.7)	229 (1.4)	249 (1.2)	260 (3.0)
Arkansas	197 (1.6)	133 (2.4)	148 (3.2)	173 (2.7)	198 (1.6)	222 (1.4)	243 (1.4)	254 (1.8)
California	202 (1.8)	144 (2.8)	157 (2.0)	179 (2.0)	204 (2.0)	226 (2.2)	246 (1.5)	257 (2.6)
Colorado	212 (1.2)	155 (2.2)	169 (1.5)	190 (1.8)	214 (1.2)	235 (1.0)	253 (2.2)	263 (1.4)
Connecticut	217 (1.4)	156 (3.2)	171 (3.1)	194 (1.6)	219 (1.5)	242 (1.5)	260 (1.3)	271 (1.6)
Delaware	203 (1.5)	140 (3.0)	154 (2.9)	177 (2.0)	203 (1.6)	229 (2.2)	251 (2.1)	264 (1.9)
Dist. Columbia	171 (1.0)	114 (1.8)	126 (1.4)	145 (1.1)	168 (1.1)	192 (1.2)	218 (1.9)	239 (2.3)
Florida	200 (1.9)	137 (3.4)	152 (2.3)	176 (1.7)	202 (1.7)	225 (2.1)	247 (2.4)	259 (3.7)
Georgia	199 (1.5)	137 (2.1)	151 (2.0)	173 (2.4)	200 (2.4)	226 (2.0)	247 (1.5)	258 (1.9)
Hawaii	199 (1.7)	142 (3.2)	156 (2.5)	176 (2.0)	199 (1.8)	222 (2.1)	241 (2.7)	252 (2.6)
Idaho	211 (1.2)	157 (2.6)	170 (2.3)	191 (1.6)	213 (1.5)	234 (1.2)	251 (1.6)	261 (2.0)
Indiana	210 (1.6)	154 (2.0)	166 (2.8)	187 (1.7)	210 (1.4)	234 (1.9)	254 (1.7)	266 (1.3)
Iowa	221 (1.4)	161 (2.8)	176 (1.9)	198 (1.6)	222 (1.1)	245 (1.7)	264 (1.7)	274 (2.6)
Kentucky	205 (1.3)	151 (3.1)	162 (2.3)	182 (1.2)	205 (1.2)	228 (2.0)	248 (2.7)	260 (2.2)
Louisiana	188 (1.7)	129 (3.1)	143 (1.8)	164 (2.6)	189 (2.6)	213 (1.5)	234 (2.2)	247 (2.0)
Maine	220 (1.5)	169 (4.7)	180 (2.3)	200 (1.7)	221 (1.7)	241 (1.3)	257 (1.8)	267 (2.2)
Maryland	200 (1.5)	132 (2.7)	147 (2.6)	172 (2.3)	200 (2.0)	229 (1.4)	251 (2.0)	264 (2.6)
Massachusetts	217 (1.4)	154 (3.1)	170 (2.0)	194 (1.9)	219 (1.4)	241 (1.6)	260 (2.3)	270 (2.4)
Michigan	209 (2.2)	138 (4.9)	157 (4.4)	185 (1.6)	213 (2.4)	236 (2.7)	255 (1.7)	265 (2.9)
Minnesota	223 (1.4)	167 (1.5)	181 (2.3)	202 (1.7)	225 (1.5)	246 (1.4)	263 (1.8)	273 (2.7)
Mississippi	188 (1.6)	130 (6.2)	143 (2.6)	165 (1.8)	188 (1.5)	212 (1.6)	233 (1.3)	244 (1.7)
Missouri	211 (1.7)	151 (2.6)	165 (2.5)	187 (1.9)	211 (2.3)	235 (2.1)	256 (1.6)	267 (2.1)
Nebraska	216 (1.5)	157 (3.2)	171 (1.3)	194 (2.1)	217 (2.0)	239 (1.3)	257 (2.0)	268 (2.5)
New Hampshire	222 (1.5)	168 (2.5)	181 (2.1)	202 (1.6)	222 (1.4)	244 (2.1)	262 (1.9)	272 (2.1)
New Jersey	213 (1.9)	146 (4.3)	163 (4.7)	190 (2.0)	216 (1.7)	240 (2.3)	257 (1.5)	268 (1.7)
New Mexico	203 (1.8)	150 (2.6)	161 (2.0)	181 (1.7)	203 (1.8)	225 (1.9)	244 (1.6)	254 (2.7)
New York	204 (1.8)	135 (6.4)	152 (3.3)	179 (2.6)	206 (1.2)	231 (1.8)	252 (1.8)	263 (2.3)
North Carolina	198 (1.4)	135 (2.1)	148 (2.0)	172 (1.3)	199 (1.6)	224 (1.6)	246 (1.6)	258 (2.8)
North Dakota	222 (1.3)	169 (3.1)	182 (2.0)	203 (1.2)	223 (1.4)	243 (1.3)	259 (1.7)	269 (2.1)
Ohio	210 (1.4)	151 (2.2)	164 (1.9)	186 (2.1)	210 (1.8)	234 (1.7)	254 (1.9)	266 (2.0)
Oklahoma	211 (1.4)	158 (2.9)	170 (2.4)	190 (2.6)	212 (1.2)	233 (2.1)	251 (1.6)	262 (2.5)
Pennsylvania	212 (1.6)	148 (3.3)	164 (4.1)	189 (2.1)	215 (1.5)	239 (1.8)	257 (1.6)	268 (2.6)
Rhode Island	206 (1.8)	147 (3.7)	161 (3.0)	184 (2.2)	207 (2.1)	229 (1.9)	248 (2.1)	258 (2.0)
South Carolina	195 (1.5)	134 (3.1)	147 (1.1)	169 (1.4)	196 (2.3)	222 (2.3)	244 (2.2)	255 (1.8)
Tennessee	200 (1.5)	144 (3.1)	157 (2.5)	178 (1.0)	201 (1.7)	223 (1.1)	243 (2.4)	253 (1.7)
Texas	199 (1.7)	135 (2.8)	149 (2.5)	174 (2.4)	200 (1.5)	226 (2.3)	248 (1.8)	261 (1.6)
Utah	213 (1.0)	159 (2.1)	172 (1.7)	193 (1.3)	214 (1.1)	235 (0.9)	253 (1.9)	264 (1.8)
Virginia	206 (1.5)	143 (3.2)	157 (2.2)	180 (1.6)	206 (1.9)	232 (2.3)	255 (2.7)	268 (3.6)
West Virginia	204 (1.4)	150 (2.7)	162 (3.0)	182 (1.7)	204 (1.5)	226 (1.5)	245 (1.6)	257 (2.5)
Wisconsin	219 (1.7)	164 (2.3)	177 (2.3)	199 (1.9)	221 (2.2)	242 (1.6)	260 (1.6)	270 (1.7)
Wyoming	216 (1.1)	167 (2.6)	179 (2.3)	198 (1.7)	218 (1.3)	237 (1.4)	252 (0.9)	262 (2.2)
TERRITORY								
Guam	173 (0.8)	115 (2.3)	127 (2.0)	149 (1.6)	173 (1.2)	196 (1.0)	216 (1.6)	229 (1.3)

The standard errors of the estimated proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. ! Interpret with caution - the nature of the sample does not allow accurate determination of the variability of this estimated statistic.

TABLE 3.12 | **Percentiles of Proficiency in Estimation (continued)**

PUBLIC SCHOOLS	Grade 8 - 1992							
	Average Proficiency	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
NATION	269 (1.5)	221 (3.1)	232 (1.9)	250 (1.9)	271 (1.5)	290 (1.5)	305 (2.3)	314 (1.9)
Northeast	269 (5.1)	210 (5.0)	222 (3.9)	244(10.7)	272 (5.2)	294 (6.6)	311 (7.4)	319 (7.0)
Southeast	264 (2.6)	219 (6.2)	231 (4.2)	247 (3.7)	264 (2.8)	282 (3.8)	297 (3.1)	307 (4.2)
Central	274 (2.6)	230 (3.6)	239 (4.2)	257 (7.8)	277 (5.5)	292 (3.6)	307 (6.2)	315 (3.7)
West	270 (2.0)	227 (4.5)	236 (3.7)	251 (3.2)	271 (2.4)	268 (4.1)	304 (2.6)	313 (5.0)
STATES								
Alabama	260 (1.1)	217 (1.3)	226 (1.4)	242 (1.2)	259 (1.5)	277 (1.4)	294 (1.4)	304 (1.6)
Arizona	269 (1.1)	226 (1.6)	235 (2.0)	251 (1.4)	269 (1.1)	286 (1.0)	302 (1.2)	311 (2.0)
Arkansas	263 (1.3)	216 (2.8)	227 (2.1)	245 (1.9)	264 (1.3)	282 (1.4)	299 (1.0)	307 (1.8)
California	263 (1.4)	212 (4.6)	223 (2.4)	242 (1.1)	264 (1.4)	284 (1.6)	301 (1.7)	309 (2.4)
Colorado	273 (0.9)	229 (2.3)	239 (1.1)	256 (1.5)	274 (1.0)	290 (0.9)	304 (1.0)	312 (1.6)
Connecticut	275 (1.1)	225 (1.2)	237 (2.0)	256 (2.0)	276 (1.0)	296 (1.2)	311 (0.9)	319 (1.6)
Delaware	264 (0.9)	215 (2.1)	226 (1.7)	245 (0.9)	265 (1.4)	284 (1.1)	301 (0.9)	310 (1.3)
Dist. Columbia	241 (0.8)	195 (2.3)	205 (1.7)	221 (1.4)	240 (1.3)	260 (1.4)	278 (1.1)	289 (2.2)
Florida	264 (1.1)	216 (2.2)	227 (1.4)	245 (1.6)	264 (1.3)	284 (1.4)	300 (1.4)	310 (1.4)
Georgia	263 (0.9)	219 (2.3)	229 (1.2)	245 (1.0)	264 (1.0)	282 (1.2)	298 (1.4)	307 (1.7)
Hawaii	260 (0.8)	212 (1.3)	223 (1.2)	241 (1.7)	261 (1.0)	281 (1.8)	297 (0.8)	307 (1.6)
Idaho	274 (0.6)	234 (1.4)	244 (0.9)	259 (0.7)	275 (0.9)	291 (0.9)	304 (0.7)	311 (1.0)
Indiana	271 (0.9)	227 (0.9)	237 (1.2)	254 (1.1)	271 (1.7)	289 (0.9)	304 (1.5)	313 (1.5)
Iowa	282 (0.9)	240 (2.3)	251 (1.1)	266 (1.3)	284 (1.1)	300 (0.9)	312 (0.8)	320 (1.5)
Kentucky	266 (0.9)	220 (1.7)	230 (1.7)	248 (1.4)	267 (0.8)	284 (1.5)	299 (1.5)	308 (0.9)
Louisiana	258 (1.4)	215 (1.5)	224 (2.1)	241 (1.6)	258 (1.3)	275 (2.0)	289 (1.8)	298 (1.3)
Maine	275 (1.0)	232 (3.7)	242 (1.6)	259 (1.1)	276 (1.2)	293 (0.9)	308 (1.2)	316 (1.6)
Maryland	264 (1.1)	212 (3.2)	223 (1.6)	243 (1.2)	266 (2.2)	287 (1.5)	303 (1.8)	312 (1.1)
Massachusetts	275 (0.9)	230 (2.1)	240 (1.2)	257 (1.4)	276 (1.1)	294 (0.9)	308 (1.8)	317 (2.1)
Michigan	268 (1.2)	220 (2.4)	231 (2.0)	250 (1.8)	269 (1.3)	288 (1.5)	303 (1.7)	311 (1.9)
Minnesota	284 (0.8)	243 (1.7)	252 (0.8)	267 (1.0)	285 (1.0)	301 (0.9)	314 (1.0)	322 (1.6)
Mississippi	259 (1.0)	216 (1.7)	225 (1.2)	241 (1.2)	258 (1.1)	276 (0.9)	294 (2.3)	303 (2.0)
Missouri	271 (1.1)	226 (2.3)	237 (2.3)	254 (1.4)	272 (1.2)	289 (1.2)	303 (1.4)	312 (1.2)
Nebraska	277 (1.0)	228 (2.4)	241 (1.6)	260 (1.2)	279 (0.8)	297 (1.2)	311 (1.1)	319 (1.9)
New Hampshire	277 (0.9)	236 (1.6)	245 (1.3)	261 (0.7)	277 (1.0)	294 (0.9)	308 (2.0)	316 (1.1)
New Jersey	274 (1.3)	226 (3.3)	237 (2.0)	255 (1.4)	275 (1.3)	294 (1.3)	309 (1.4)	319 (1.7)
New Mexico	265 (1.0)	223 (1.5)	233 (2.6)	249 (1.6)	265 (1.1)	282 (1.2)	297 (1.2)	306 (1.3)
New York	266 (1.8)	209 (6.3)	224 (3.3)	247 (2.4)	269 (1.7)	288 (1.5)	304 (1.8)	314 (1.1)
North Carolina	263 (1.0)	215 (2.1)	226 (1.6)	244 (0.9)	263 (1.2)	282 (1.3)	299 (2.4)	309 (1.6)
North Dakota	283 (1.0)	243 (1.9)	253 (1.7)	268 (1.5)	284 (1.3)	299 (1.4)	311 (1.1)	319 (1.2)
Ohio	269 (1.1)	223 (1.5)	233 (1.5)	252 (1.6)	271 (2.1)	289 (1.2)	304 (1.0)	312 (1.7)
Oklahoma	271 (0.9)	229 (2.0)	238 (1.5)	255 (1.5)	272 (1.4)	289 (0.9)	304 (1.2)	312 (1.7)
Pennsylvania	272 (1.3)	225 (2.4)	236 (1.7)	254 (1.7)	273 (1.4)	291 (1.8)	307 (1.5)	317 (1.9)
Rhode Island	269 (0.7)	223 (2.0)	233 (1.0)	251 (1.2)	270 (0.9)	288 (0.8)	303 (1.2)	312 (1.3)
South Carolina	264 (0.9)	219 (2.0)	229 (1.1)	245 (1.1)	264 (1.0)	283 (1.1)	301 (1.2)	310 (1.4)
Tennessee	264 (1.4)	219 (1.1)	229 (1.7)	245 (1.8)	264 (1.5)	283 (1.7)	299 (1.8)	308 (1.5)
Texas	267 (0.9)	222 (0.8)	231 (1.3)	249 (1.0)	268 (0.9)	286 (1.0)	303 (1.6)	313 (1.7)
Utah	274 (0.7)	231 (1.5)	241 (1.8)	258 (1.2)	275 (0.9)	292 (1.0)	306 (1.3)	313 (1.1)
Virginia	271 (1.1)	224 (1.8)	235 (0.6)	252 (1.2)	271 (1.4)	290 (1.7)	306 (1.4)	315 (2.9)
West Virginia	263 (0.8)	222 (2.3)	231 (1.6)	246 (1.3)	263 (1.3)	280 (0.8)	294 (1.0)	302 (1.0)
Wisconsin	278 (1.1)	232 (2.1)	243 (2.1)	261 (1.5)	279 (0.9)	296 (1.0)	310 (0.9)	318 (1.8)
Wyoming	276 (0.9)	236 (2.0)	245 (1.0)	261 (1.0)	277 (1.0)	293 (1.0)	306 (1.2)	314 (1.2)
TERRITORIES								
Guam	244 (1.1)	197 (2.2)	206 (1.9)	222 (1.4)	242 (1.8)	265 (1.7)	283 (1.3)	293 (2.2)
Virgin Islands	231 (1.5)	189 (2.6)	199 (2.6)	215 (2.1)	231 (1.6)	249 (1.7)	263 (2.3)	272 (2.3)

TABLE 3.13 | Average Estimation Proficiency and Achievement Levels

PUBLIC SCHOOLS	Grade 4 - 1992				
	Average Proficiency	Percentage of Students At or Above Advanced	Percentage of Students At or Above Proficient	Percentage of Students At or Above Basic	Percentage of Students Below Basic
NATION	206 (1.8)	1 (0.3)	28 (2.0)	90 (1.3)	10 (1.3)
Northeast	205 (6.8)!	0 (0.0)	29 (6.3)	86 (4.6)	14 (4.6)
Southeast	195 (3.9)	0 (0.4)	18 (3.5)	84 (3.5)	16 (3.5)
Central	212 (4.3)	1 (0.0)	35 (4.8)	92 (3.7)	8 (3.7)
West	213 (3.5)	1 (0.7)	33 (4.6)	95 (2.2)	5 (2.2)
STATES					
Alabama	198 (1.9)	0 (0.2)	20 (1.8)	86 (1.5)	14 (1.5)
Arizona	205 (1.4)	1 (0.2)	25 (1.5)	91 (1.1)	9 (1.1)
Arkansas	197 (1.6)	0 (0.2)	19 (1.2)	85 (1.5)	15 (1.5)
California	202 (1.8)	0 (0.2)	22 (1.9)	90 (1.1)	10 (1.1)
Colorado	212 (1.2)	1 (0.2)	32 (1.6)	94 (0.6)	6 (0.6)
Connecticut	217 (1.4)	1 (0.3)	39 (1.7)	94 (0.9)	6 (0.9)
Delaware	203 (1.5)	1 (0.3)	25 (1.5)	88 (1.0)	12 (1.0)
Dist. Columbia	171 (1.0)	0 (0.2)	7 (0.6)	62 (1.0)	38 (1.0)
Florida	200 (1.9)	1 (0.4)	22 (1.6)	87 (1.5)	13 (1.5)
Georgia	199 (1.5)	0 (0.2)	22 (1.5)	86 (1.1)	14 (1.1)
Hawaii	199 (1.7)	0 (0.1)	19 (1.9)	89 (1.3)	11 (1.3)
Idaho	211 (1.2)	0 (0.2)	30 (1.7)	95 (0.7)	5 (0.7)
Indiana	210 (1.6)	1 (0.2)	29 (1.7)	94 (1.0)	6 (1.0)
Iowa	221 (1.4)	2 (0.4)	42 (1.5)	96 (0.5)	4 (0.5)
Kentucky	205 (1.3)	1 (0.3)	24 (1.8)	92 (1.2)	8 (1.2)
Louisiana	188 (1.7)	0 (0.1)	13 (1.1)	80 (1.8)	20 (1.8)
Maine	220 (1.5)	1 (0.3)	39 (2.2)	97 (0.6)	3 (0.6)
Maryland	200 (1.5)	1 (0.2)	25 (1.4)	84 (1.4)	16 (1.4)
Massachusetts	217 (1.4)	1 (0.5)	39 (1.7)	94 (0.8)	6 (0.8)
Michigan	209 (2.2)	1 (0.4)	32 (2.1)	90 (1.6)	10 (1.6)
Minnesota	223 (1.4)	2 (0.4)	46 (2.0)	97 (0.5)	3 (0.5)
Mississippi	188 (1.6)	0 (0.1)	12 (1.0)	80 (1.6)	20 (1.6)
Missouri	211 (1.7)	1 (0.3)	31 (1.9)	93 (0.9)	7 (0.9)
Nebraska	216 (1.5)	1 (0.4)	36 (2.0)	95 (0.8)	5 (0.8)
New Hampshire	222 (1.5)	1 (0.3)	41 (2.1)	97 (0.6)	3 (0.6)
New Jersey	213 (1.9)	1 (0.4)	36 (2.0)	92 (1.3)	8 (1.3)
New Mexico	203 (1.8)	0 (0.2)	21 (2.1)	92 (1.1)	8 (1.1)
New York	204 (1.8)	1 (0.3)	27 (1.7)	88 (1.5)	12 (1.5)
North Carolina	198 (1.4)	1 (0.3)	21 (1.3)	85 (1.0)	15 (1.0)
North Dakota	222 (1.3)	1 (0.3)	42 (1.9)	98 (0.5)	2 (0.5)
Ohio	210 (1.4)	1 (0.3)	30 (1.8)	93 (0.8)	7 (0.8)
Oklahoma	211 (1.4)	1 (0.3)	29 (1.8)	95 (0.9)	5 (0.9)
Pennsylvania	212 (1.6)	1 (0.3)	35 (1.6)	92 (1.1)	8 (1.1)
Rhode Island	206 (1.8)	0 (0.2)	25 (1.6)	91 (1.2)	9 (1.2)
South Carolina	195 (1.5)	0 (0.1)	20 (1.6)	84 (1.1)	16 (1.1)
Tennessee	200 (1.5)	0 (0.1)	20 (1.5)	90 (1.2)	10 (1.2)
Texas	199 (1.7)	1 (0.2)	22 (1.8)	86 (1.1)	14 (1.1)
Utah	213 (1.0)	1 (0.2)	32 (1.2)	95 (0.7)	5 (0.7)
Virginia	206 (1.5)	2 (0.4)	28 (1.7)	89 (1.0)	11 (1.0)
West Virginia	204 (1.4)	0 (0.2)	22 (1.5)	92 (1.1)	8 (1.1)
Wisconsin	219 (1.7)	1 (0.4)	40 (2.0)	96 (0.7)	4 (0.7)
Wyoming	216 (1.1)	0 (0.2)	34 (1.3)	97 (0.6)	3 (0.6)
TERRITORY					
Guam	173 (0.8)	0 (0.1)	5 (0.6)	67 (1.4)	33 (1.4)

The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. Descriptions of mathematics proficiency at the three achievement levels are found in Chapter One. ! Interpret with caution - the nature of the sample does not allow accurate determination of the variability of this estimated statistic.

TABLE 3.13 | Average Estimation Proficiency and Achievement Levels (continued)

PUBLIC SCHOOLS	Grade 8 - 1992				
	Average Proficiency	Percentage of Students At or Above Advanced	Percentage of Students At or Above Proficient	Percentage of Students At or Above Basic	Percentage of Students Below Basic
NATION	269 (1.5)	1 (0.4)	19 (2.1)	66 (2.2)	34 (2.2)
Northeast	269 (5.1)	2 (1.3)	24 (5.7)	63 (6.3)	37 (6.3)
Southeast	264 (2.6)	1 (1.0)	12 (2.8)	60 (4.5)	40 (4.5)
Central	274 (2.6)	1 (1.0)	21 (4.7)	74 (4.0)	26 (4.0)
West	270 (2.0)	1 (0.7)	18 (2.3)	67 (3.2)	33 (3.2)
STATES					
Alabama	260 (1.1)	0 (0.2)	9 (1.0)	52 (1.9)	48 (1.9)
Arizona	269 (1.1)	1 (0.3)	15 (0.9)	66 (2.1)	34 (2.1)
Arkansas	263 (1.3)	1 (0.2)	13 (1.0)	58 (1.9)	42 (1.9)
California	263 (1.4)	1 (0.4)	15 (1.3)	58 (2.0)	42 (2.0)
Colorado	273 (0.9)	1 (0.2)	19 (1.3)	73 (1.4)	27 (1.4)
Connecticut	275 (1.1)	2 (0.5)	26 (1.3)	72 (1.5)	28 (1.5)
Delaware	264 (0.9)	1 (0.4)	14 (0.9)	59 (1.3)	41 (1.3)
Dist. Columbia	241 (0.8)	0 (0.2)	3 (0.3)	27 (1.2)	73 (1.2)
Florida	264 (1.1)	1 (0.3)	14 (1.2)	59 (1.8)	41 (1.8)
Georgia	263 (0.9)	1 (0.3)	12 (1.1)	58 (1.8)	42 (1.8)
Hawaii	260 (0.8)	1 (0.2)	12 (0.8)	54 (1.3)	46 (1.3)
Idaho	274 (0.6)	1 (0.2)	19 (1.0)	76 (0.9)	24 (0.9)
Indiana	271 (0.9)	1 (0.3)	18 (1.2)	70 (1.8)	30 (1.8)
Iowa	282 (0.9)	2 (0.6)	32 (1.5)	84 (1.0)	16 (1.0)
Kentucky	266 (0.9)	1 (0.2)	13 (1.3)	63 (1.5)	37 (1.5)
Louisiana	258 (1.4)	0 (0.1)	7 (0.9)	50 (2.6)	50 (2.6)
Maine	275 (1.0)	1 (0.4)	22 (1.4)	76 (1.5)	24 (1.5)
Maryland	264 (1.1)	1 (0.3)	16 (1.3)	59 (1.5)	41 (1.5)
Massachusetts	275 (0.9)	2 (0.5)	24 (1.4)	74 (1.3)	26 (1.3)
Michigan	268 (1.2)	1 (0.3)	17 (1.4)	65 (1.6)	35 (1.6)
Minnesota	284 (0.8)	3 (0.4)	34 (1.5)	85 (1.1)	15 (1.1)
Mississippi	259 (1.0)	0 (0.1)	9 (1.2)	51 (1.7)	49 (1.7)
Missouri	271 (1.1)	1 (0.3)	18 (1.2)	70 (1.6)	30 (1.6)
Nebraska	277 (1.0)	2 (0.4)	27 (1.4)	78 (1.4)	22 (1.4)
New Hampshire	277 (0.9)	1 (0.4)	23 (1.2)	79 (1.2)	21 (1.2)
New Jersey	274 (1.3)	2 (0.5)	23 (1.5)	72 (1.8)	28 (1.8)
New Mexico	265 (1.0)	0 (0.2)	11 (1.0)	61 (1.7)	39 (1.7)
New York	266 (1.8)	1 (0.4)	17 (1.3)	63 (2.0)	37 (2.0)
North Carolina	263 (1.0)	1 (0.2)	13 (1.1)	56 (1.6)	44 (1.6)
North Dakota	283 (1.0)	2 (0.5)	32 (2.0)	86 (1.3)	14 (1.3)
Ohio	269 (1.1)	1 (0.2)	18 (1.5)	68 (1.9)	32 (1.9)
Oklahoma	271 (0.9)	1 (0.3)	19 (1.3)	71 (1.8)	29 (1.8)
Pennsylvania	272 (1.3)	2 (0.4)	21 (1.6)	70 (1.7)	30 (1.7)
Rhode Island	269 (0.7)	1 (0.3)	17 (0.9)	67 (1.4)	33 (1.4)
South Carolina	264 (0.9)	1 (0.3)	14 (1.1)	58 (1.5)	42 (1.5)
Tennessee	264 (1.4)	1 (0.3)	13 (1.4)	59 (2.0)	41 (2.0)
Texas	267 (0.9)	1 (0.3)	16 (1.2)	63 (1.6)	37 (1.6)
Utah	274 (0.7)	1 (0.2)	21 (1.1)	75 (1.4)	25 (1.4)
Virginia	271 (1.1)	2 (0.6)	19 (1.3)	68 (1.6)	32 (1.6)
West Virginia	263 (0.8)	0 (0.1)	9 (0.7)	58 (1.5)	42 (1.5)
Wisconsin	278 (1.1)	2 (0.7)	26 (1.3)	78 (1.6)	22 (1.6)
Wyoming	276 (0.9)	1 (0.3)	22 (1.3)	78 (1.5)	22 (1.5)
TERRITORIES					
Guam	244 (1.1)	0 (0.1)	4 (0.7)	32 (1.5)	68 (1.5)
Virgin Islands	231 (1.5)	0 (0.0)	1 (0.2)	15 (1.7)	85 (1.7)

When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. Descriptions of mathematics proficiency at the three achievement levels are found in Chapter One.

Summary

The overall analysis of the content area information suggests a strong pattern of overall student growth across the nation in content area proficiency at grades 4, 8, and 12. Significant growth took place at all grade levels in numbers and operations and in measurement. In geometry, significant growth occurred at grade 4 and at grade 12. In algebra and functions, there were significant gains at grades 4 and 8. However, the results indicate more movement in the top half of the performance distribution at grades 4 and 8 than in the bottom half, while the converse was found at grade 12.

The results for the 37 jurisdictions that participated in both the 1990 and 1992 mathematics assessments at grade 8 revealed gains for a number of states across the content areas, especially in numbers and operations, measurement, and algebra and functions. The latter improvements are consistent with recommendations contained in the *NCTM Curriculum and Evaluation Standards* to strengthen the emphasis on algebra at the eighth grade. In general, the top-performing and lower-performing jurisdictions within each of the content areas mirrored the data for overall mathematics proficiency. However, some differences were noted, particularly for algebra and functions in the fourth grade, where 15 of the participants were found among top-performing states.

Six states, including Iowa, Maine, Minnesota, New Hampshire, North Dakota, and Wisconsin, had average proficiency in the top 20 percent of the participating jurisdictions for all five content areas and estimation at both grades 4 and 8.

Despite the general tendency for gains between assessments to be found in some content areas more than in others and at particular parts of the proficiency distribution more than others, the results do indicate that the improvements in overall mathematics proficiency described in Chapter One were reasonably well dispersed across the mathematics content areas.

APPENDIX A

What Students Know and Can Do in Mathematics: NAEP's Anchor-Level Results

Introduction

Scale anchoring is a procedure to describe performance at particular points or "anchor" levels on the 0 to 500 NAEP scale. More specifically, based on students' performance on the assessment questions, mathematics understandings are described that represent gains from one anchor level to the next; that is, what students know and can do at one level that differentiates them from students performing at lower levels. The descriptions of advances in mathematical understanding from one anchor level to the next are presented together with percentages of students performing at or above each level.

The NAEP mathematics scale was anchored at 50-point intervals -- 200, 250, 300, and 350. In theory, NAEP could have defined proficiency levels above 350 or below 200; however, so few students in the assessment performed at the extreme ends of the scale that it was not useful to do so.

To develop the descriptions, first an empirical process was used to delineate sets of questions typical of what students know and can do at the anchor intervals on the scale -- sets of items that students at one level were more likely to answer correctly than were students at the next lower level.[23] The four sets of anchor questions -- each containing from 33 to 88 questions -- were studied by a panel of mathematics educators, who carefully considered and articulated the types of knowledge, skills, and reasoning abilities demonstrated by correct responses.

For this report containing 1992 results, the 1990 anchoring process was replicated to update the descriptions used previously in reporting the 1990 assessment results.[24] Some items in the 1992 assessment were carried forward from 1990 to provide a basis for measuring trends, but others were newly developed measures of the mathematics framework intended to reflect improvements in ways of assessing mathematics achievement. Thus, the updated descriptions provided in this report reflect the evolution of the 1992 items.

Descriptions of Overall Mathematics Proficiency for the Nation and the States

TABLE A.1 presents the average mathematics proficiency for fourth, eighth, and twelfth graders and the percentages of students in each grade performing at or above the four anchor levels in both 1992 and 1990. The corresponding information for states and territories participating in the 1992 Trial State Assessments is found in TABLE A.2. In making comparisons between national, regional, and state performance, the data found at the top of TABLE A.2 should be used. Whereas the national results provided in TABLE A.1 are based on students attending both private and public schools, the national, regional, and state data found in TABLE A.2 are based only on students attending public schools. In general, the two data sets for the nation and regions of the country are very similar, but the national figures including private school students are usually 1 to 2 percentage points higher than those in the state comparison sample. Also, it should be remembered that the regional results for the state comparisons are based on the national samples and not on an aggregate of participating states for that region, which would not necessarily have been representative of regional performance. Finally, although trend results from 1990 are available for the nation at all three grades and the states at grade 8, the Trial State Assessments were not conducted at grade 4 in 1990. The descriptions summarizing performance at the four anchor levels are found in FIGURE A.1.

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[23] For more detailed descriptions of the scale anchoring process and how it is implemented, please see:

Gary W. Phillips, et al., *Interpreting NAEP Scales* (Washington, D.C.: National Center for Education Statistics, U.S. Government Printing Office, 1993).

Eugene G. Johnson, et al., *The Technical Report of NAEP's 1992 Trial State Assessment of Mathematics* (Princeton, N.J.: National Assessment of Educational Progress, Educational Testing Service, 1993).

Albert E. Beaton and Nancy Allen, "Interpreting Scales through Scale Anchoring," *Journal of Educational Statistics*, 1992, 17, pp. 191-204.

[24] Ina V.S. Mullis, et al., *The State of Mathematics Achievement* (Washington, D.C.: National Center for Education Statistics, U.S. Government Printing Office, 1991).

TABLE A.1 National Overall Average Mathematics Proficiency and Anchor Levels, Grades 4, 8, and 12

		Assessment Years	Grade 4	Grade 8	Grade 12
Average Proficiency		1992 1990	218(0.7)> 213(0.9)	268(0.9)> 263(1.3)	299(0.9)> 294(1.1)
Level	Description		Percentage of Students At or Above		
200	**Addition and Subtraction, and Simple Problem Solving with Whole Numbers**	1992 1990	72(0.9)> 67(1.4)	97(0.4) 95(0.7)	100(0.1) 100(0.2)
250	**Multiplication and Division, Simple Measurement, and Two-Step Problem Solving**	1992 1990	17(0.8)> 12(1.1)	68(1.0) 65(1.4)	91(0.5)> 88(0.9)
300	**Reasoning and Problem Solving Involving Fractions, Decimals, Percents, and Elementary Concepts in Geometry, Statistics, and Algebra**	1992 1990	0(0.1) 0(0.1)	20(0.9)> 15(1.0)	50(1.2)> 45(1.4)
350	**Reasoning and Problem Solving Involving Geometric Relationships, Algebra, and Functions**	1992 1990	0(0.0) 0(0.0)	1(0.2) 0(0.2)	6(0.5) 5(0.8)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details). When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 percent or less were rounded to 0 percent.

FIGURE A.1 Description of Mathematics Proficiency for Four Anchor Levels on the NAEP Scale

Level 200	**Addition and Subtraction, and Simple Problem Solving with Whole Numbers**

Students at this level can identify solutions to one-step word problems, involving addition or subtraction. They can add and subtract whole numbers in most situations, and when a calculator is available, they can multiply and divide. They are able to select the largest whole number from a set of numbers in the thousands, and can match the verbal and symbolic names for numbers.

Students demonstrate familiarity with length and weight, by selecting appropriate instruments and units to measure these attributes. They are able to recognize some basic properties of two-dimensional geometric figures as well as the names of standard examples of these figures. They can recognize simple patterns.

Level 250	**Multiplication and Division, Simple Measurement, and Two-Step Problem Solving**

When presented with a problem situation, students at this level have some understanding of the problem, can identify extraneous information, and have some knowledge of when to use computational estimation. They have an understanding of addition, subtraction, multiplication, and division with whole numbers. They can solve simple two-step problems involving whole numbers. They are able to round whole numbers and solve simple word problems involving place value, estimation, and multiples.

Students can use a ruler to measure length in centimeters and have some understanding of area and perimeter. They can solve simple problems using readings from instruments. They demonstrate a knowledge of properties of triangles, squares, rectangles, circles, and cubes. They can solve problems that require visualizing, drawing or manipulating simple geometric shapes. They are able to complete bar graphs and pictographs, as well as use information from graphs or tables to solve simple problems. They can recognize simple number patterns, are beginning to deal informally with the idea of a variable, and have some knowledge of simple probability.

Level 300

Reasoning and Problem Solving Involving Fractions, Decimals, Percents, Elementary Concepts in Geometry, Statistics, and Algebra

Students at this level can use various strategies and explain their reasoning in a variety of problem-solving situations. They are able to solve problems involving not only whole numbers but with decimals and fractions. They can represent and find equivalent fractions, and use these concepts in solving routine problems. They can find a percent of a number and use this skill in simple problems. Multiplication and division of whole numbers have developed to the extent that students can use all four operations in multi-step problems.

Students can read and use instruments in more complex situations. They can find areas of rectangles, recognize relationships among common units of measure, and solve routine problems involving similar triangles and scale drawings. They have knowledge of definitions and properties of simple geometric figures in the plane. Their spatial sense includes the ability to visualize a cube in either three-space or its flattened form in a plane.

Students can calculate averages, select and interpret data from a variety of graphs, list the possible arrangements in a sample space, find the probability of a simple event, and have a beginning understanding of sample bias. They can use knowledge of relative frequencies in simple simulation situations. Students show the ability to evaluate simple expressions and solve linear equations. Students can graph points on coordinate axes, locate the missing coordinates for a corner of a square, and identify which ordered pairs satisfy a given linear equation.

Level 350

Reasoning and Problem Solving Involving Geometric Relationships, Algebra, and Functions

Students at this level can reason and estimate with percents. They can recognize scientific notation and find the decimal equivalent. They can apply their knowledge of area and perimeter of simple geometric figures to solve problems. They can find the circumferences of circles and the surface areas of solid figures. They can solve for the length of missing segments in more complex similarity situations. Students can apply the Pythagorean Theorem to find the hypotenuse of a right triangle. They are beginning to use rectangular coordinates in problem-solving situations and can apply geometric properties and relationships in solving problems.

Students can compute means from frequency tables and create a sample space to determine probabilities, and read the graph of a step-function. Students can use exponents and evaluate expressions given in functional notation. In number theory, they have an understanding of even and odd numbers and their properties. They can identify an equation describing a linear relation provided in a table, and solve literal equations and systems of two linear equations. They have some knowledge of trigonometric relations. These students can represent and interpret complex patterns and data using numbers, expressions, and graphs. Given the graph of a function they can identify its zeros and the effect on the graph of taking the absolute value of the function.

TABLE A.2 | Overall Average Mathematics Proficiency and Anchor Levels

PUBLIC SCHOOLS	Grade 4 - 1992				
	Average Proficiency	Percentage of Students At or Above Level 200	Percentage of Students At or Above Level 250	Percentage of Students At or Above Level 300	Percentage of Students At or Above Level 350
NATION	217 (0.8)	71 (1.0)	16 (0.9)	0 (0.1)	0 (0.0)
Northeast	223 (2.1)	75 (2.5)	22 (2.7)	1 (0.3)	0 (0.0)
Southeast	209 (1.9)	61 (2.4)	10 (1.6)	0 (0.2)	0 (0.0)
Central	222 (2.2)	77 (2.9)	19 (2.0)	0 (0.1)	0 (0.0)
West	217 (1.6)	70 (1.9)	15 (2.0)	0 (0.3)	0 (0.0)
STATES					
Alabama	207 (1.6)	58 (2.1)	9 (1.1)	0 (0.0)	0 (0.0)
Arizona	214 (1.1)	68 (1.5)	12 (0.9)	0 (0.1)	0 (0.0)
Arkansas	209 (0.9)	62 (1.4)	9 (0.7)	0 (0.0)	0 (0.0)
California	207 (1.6)	60 (2.0)	11 (1.1)	0 (0.1)	0 (0.0)
Colorado	220 (1.0)	75 (1.2)	17 (1.0)	0 (0.1)	0 (0.0)
Connecticut	226 (1.2)	79 (1.3)	23 (1.4)	1 (0.3)	0 (0.0)
Delaware	217 (0.8)	69 (1.2)	15 (1.0)	0 (0.1)	0 (0.0)
Dist. Columbia	191 (0.5)	37 (1.5)	5 (0.3)	0 (0.1)	0 (0.0)
Florida	212 (1.5)	66 (1.9)	12 (1.2)	0 (0.2)	0 (0.0)
Georgia	214 (1.3)	67 (1.6)	14 (1.1)	0 (0.1)	0 (0.0)
Hawaii	213 (1.3)	65 (1.6)	14 (0.9)	0 (0.1)	0 (0.0)
Idaho	220 (1.0)	77 (1.6)	14 (1.0)	0 (0.1)	0 (0.0)
Indiana	220 (1.1)	75 (1.4)	14 (1.0)	0 (0.1)	0 (0.0)
Iowa	229 (1.1)	84 (1.1)	24 (1.1)	0 (0.1)	0 (0.0)
Kentucky	214 (1.0)	67 (1.4)	12 (1.0)	0 (0.1)	0 (0.0)
Louisiana	203 (1.4)	54 (1.9)	7 (0.8)	0 (0.1)	0 (0.0)
Maine	231 (1.0)	86 (1.0)	26 (1.5)	1 (0.2)	0 (0.0)
Maryland	216 (1.3)	67 (1.5)	17 (1.2)	0 (0.2)	0 (0.0)
Massachusetts	226 (1.2)	80 (1.1)	22 (1.4)	0 (0.2)	0 (0.0)
Michigan	219 (1.8)	73 (2.0)	17 (1.6)	0 (0.2)	0 (0.0)
Minnesota	227 (0.9)	81 (1.2)	24 (1.1)	0 (0.1)	0 (0.0)
Mississippi	200 (1.1)	50 (1.6)	6 (0.6)	0 (0.1)	0 (0.0)
Missouri	221 (1.2)	76 (1.5)	17 (1.2)	0 (0.1)	0 (0.0)
Nebraska	224 (1.3)	78 (1.5)	20 (1.6)	0 (0.2)	0 (0.0)
New Hampshire	229 (1.2)	84 (1.2)	23 (1.6)	0 (0.2)	0 (0.0)
New Jersey	226 (1.5)	80 (1.8)	23 (1.6)	0 (0.2)	0 (0.0)
New Mexico	212 (1.5)	65 (2.1)	10 (1.3)	0 (0.1)	0 (0.0)
New York	217 (1.3)	71 (1.5)	16 (1.3)	0 (0.2)	0 (0.0)
North Carolina	211 (1.1)	64 (1.6)	12 (0.8)	0 (0.1)	0 (0.0)
North Dakota	228 (0.8)	85 (0.9)	21 (1.1)	0 (0.1)	0 (0.0)
Ohio	217 (1.2)	71 (1.5)	15 (1.1)	0 (0.1)	0 (0.0)
Oklahoma	219 (1.0)	76 (1.5)	13 (1.0)	0 (0.1)	0 (0.0)
Pennsylvania	223 (1.4)	77 (1.5)	20 (1.4)	0 (0.2)	0 (0.0)
Rhode Island	214 (1.6)	68 (1.8)	12 (1.1)	0 (0.1)	0 (0.0)
South Carolina	211 (1.1)	63 (1.3)	12 (1.1)	0 (0.1)	0 (0.0)
Tennessee	209 (1.4)	63 (1.9)	9 (1.0)	0 (0.1)	0 (0.0)
Texas	217 (1.3)	71 (1.8)	14 (1.2)	0 (0.1)	0 (0.0)
Utah	223 (1.0)	79 (1.2)	18 (1.0)	0 (0.1)	0 (0.0)
Virginia	220 (1.3)	73 (1.5)	18 (1.6)	1 (0.3)	0 (0.0)
West Virginia	214 (1.1)	68 (1.6)	11 (0.9)	0 (0.1)	0 (0.0)
Wisconsin	228 (1.1)	83 (1.2)	23 (1.4)	0 (0.2)	0 (0.0)
Wyoming	224 (1.0)	82 (1.2)	17 (1.2)	0 (0.1)	0 (0.0)
TERRITORY					
Guam	191 (0.8)	40 (1.2)	4 (0.5)	0 (0.0)	0 (0.0)

The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent.

TABLE A.2 | Overall Average Mathematics Proficiency and Anchor Levels (continued)

PUBLIC SCHOOLS	Grade 8 - 1992					Grade 8 - 1990				
	Average Proficiency	Percentage of Students At or Above Level 200	Percentage of Students At or Above Level 250	Percentage of Students At or Above Level 300	Percentage of Students At or Above Level 350	Average Proficiency	Percentage of Students At or Above Level 200	Percentage of Students At or Above Level 250	Percentage of Students At or Above Level 300	Percentage of Students At or Above Level 350
NATION	266 (1.0)	96 (0.4)	67 (1.1)	18 (0.9)	1 (0.2)	262 (1.4)	95 (0.7)	64 (1.4)	15 (1.1)	1 (0.3)
Northeast	267 (3.0)	96 (0.9)	65 (3.7)	21 (2.3)	1 (0.5)	270 (3.3)	97 (1.0)	72 (3.8)	20 (3.2)	1 (0.5)
Southeast	258 (1.2)	95 (1.0)	58 (1.6)	12 (1.1)	0 (0.1)	254 (2.6)	93 (2.0)	55 (2.9)	11 (2.1)	0 (0.3)
Central	273 (2.2)	98 (0.6)	75 (2.4)	22 (2.6)	1 (0.3)	265 (2.3)	96 (1.3)	68 (2.8)	14 (1.5)	0 (0.4)
West	267 (2.1)	96 (0.6)	68 (2.3)	19 (1.8)	1 (0.4)	261 (2.6)	94 (1.4)	62 (2.5)	14 (2.1)	1 (0.4)
STATES										
Alabama	251 (1.7)	93 (1.2)	51 (2.0)	9 (0.9)	0 (0.1)	253 (1.1)	94 (0.7)	53 (1.5)	9 (0.6)	0 (0.1)
Arizona	265 (1.3) >	97 (0.4)	68 (1.7)	14 (1.1)	0 (0.1)	260 (1.3)	95 (0.7)	62 (1.8)	12 (0.9)	0 (0.2)
Arkansas	255 (1.2)	94 (0.7)	58 (1.6)	9 (0.9)	0 (0.1)	256 (0.9)	95 (0.6)	58 (1.3)	9 (0.7)	0 (0.1)
California	260 (1.7)	93 (0.8)	61 (2.0)	15 (1.3)	1 (0.3)	256 (1.3)	93 (0.6)	57 (1.5)	12 (1.2)	0 (0.2)
Colorado	272 (1.1) >	98 (0.4)	75 (1.2) >	20 (1.1) >	0 (0.2)	267 (0.9)	97 (0.4)	71 (1.1)	16 (1.0)	0 (0.1)
Connecticut	273 (1.1) >	97 (0.7)	74 (1.3)	24 (1.0)	1 (0.1)	270 (1.0)	97 (0.5)	72 (1.3)	21 (1.0)	1 (0.2)
Delaware	262 (1.0)	96 (0.8)	64 (1.3)	14 (0.9)	1 (0.2)	261 (0.9)	95 (0.7)	61 (1.2)	14 (0.8)	1 (0.3)
Dist. Columbia	234 (0.9) >	82 (1.0)	32 (1.3) >	4 (0.9)	0 (0.2)	231 (0.9)	83 (1.1)	26 (1.1)	3 (0.5)	0 (0.2)
Florida	259 (1.5)	94 (0.8)	61 (1.8)	14 (1.1)	0 (0.2)	255 (1.3)	93 (0.7)	56 (1.5)	11 (0.9)	0 (0.1)
Georgia	259 (1.2)	95 (0.6)	60 (1.5)	12 (0.9)	0 (0.2)	259 (1.3)	95 (0.6)	60 (1.4)	13 (1.1)	1 (0.4)
Hawaii	257 (0.9) »	93 (0.7) >	57 (1.2) »	13 (0.7)	0 (0.2)	251 (0.8)	90 (0.7)	51 (1.1)	11 (0.7)	1 (0.1)
Idaho	274 (0.8) >	99 (0.3)	80 (1.0)	20 (1.1)	0 (0.1)	271 (0.8)	99 (0.4)	77 (1.2)	17 (1.1)	0 (0.1)
Indiana	269 (1.2)	98 (0.5)	72 (1.3)	19 (1.2)	1 (0.3)	267 (1.1)	98 (0.4)	70 (1.5)	16 (1.1)	1 (0.2)
Iowa	283 (1.0) »	100 (0.2)	86 (1.1) >	29 (1.3) >	1 (0.3)	278 (1.1)	99 (0.3)	81 (1.1)	24 (1.4)	1 (0.2)
Kentucky	261 (1.1) >	96 (0.6)	64 (1.3) >	13 (1.0)	0 (0.2)	257 (1.2)	96 (0.6)	58 (1.7)	10 (0.8)	0 (0.1)
Louisiana	249 (1.7)	92 (0.9)	50 (1.9)	7 (1.0)	0 (0.1)	246 (1.2)	92 (0.8)	46 (1.8)	5 (0.5)	0 (0.1)
Maine	278 (1.0)	99 (0.4)	83 (1.2)	24 (1.4)	1 (0.2)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	264 (1.3)	95 (0.7)	64 (1.4)	19 (1.2)	1 (0.4)	261 (1.4)	94 (0.7)	61 (1.7)	16 (1.2)	1 (0.2)
Massachusetts	272 (1.1)	98 (0.5)	74 (1.5)	22 (1.3)	1 (0.2)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	267 (1.4)	96 (0.5)	69 (1.5)	18 (1.4)	0 (0.2)	264 (1.2)	97 (0.5)	67 (1.3)	15 (1.1)	1 (0.2)
Minnesota	282 (1.0) »	99 (0.2)	83 (1.1) >	29 (1.2) »	1 (0.3)	275 (0.9)	98 (0.4)	79 (1.0)	22 (1.2)	1 (0.3)
Mississippi	246 (1.2)	90 (0.8)	45 (1.4)	6 (0.7)	0 (0.0)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	270 (1.2)	98 (0.5)	74 (1.6)	18 (1.3)	0 (0.2)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	277 (1.1)	98 (0.3)	81 (1.1)	25 (1.6)	1 (0.2)	276 (1.0)	98 (0.4)	79 (1.1)	23 (1.2)	1 (0.3)
New Hampshire	278 (1.0) »	99 (0.3)	82 (1.0) >	23 (1.3)	1 (0.2)	273 (0.9)	99 (0.4)	78 (1.4)	19 (1.2)	1 (0.2)
New Jersey	271 (1.6)	97 (0.6)	73 (1.8)	22 (1.4)	1 (0.3)	270 (1.1)	98 (0.6)	71 (1.4)	20 (1.1)	1 (0.2)
New Mexico	259 (0.9) >	96 (0.6)	61 (1.3)	10 (0.8)	0 (0.1)	256 (0.7)	96 (0.5)	57 (1.2)	10 (0.9)	0 (0.2)
New York	266 (2.1)	94 (1.2)	68 (2.3)	19 (1.2) >	1 (0.2)	261 (1.4)	94 (0.9)	63 (1.6)	15 (0.9)	1 (0.3)
North Carolina	258 (1.2) »	95 (0.6) >	59 (1.4) »	11 (0.9) >	0 (0.1)	250 (1.1)	92 (0.7)	51 (1.4)	8 (0.7)	0 (0.1)
North Dakota	283 (1.2)	100 (0.2)	87 (1.1)	28 (1.6)	0 (0.2)	281 (1.2)	99 (0.3)	86 (1.4)	26 (1.8)	1 (0.4)
Ohio	267 (1.5)	97 (0.5)	70 (1.7)	17 (1.3)	0 (0.2)	264 (1.0)	97 (0.4)	66 (1.3)	14 (1.0)	0 (0.1)
Oklahoma	267 (1.2) >	97 (0.4)	72 (1.6) >	16 (1.2)	0 (0.1)	263 (1.3)	97 (0.5)	66 (1.5)	13 (1.1)	0 (0.2)
Pennsylvania	271 (1.5)	98 (0.6)	73 (1.6)	20 (1.4)	0 (0.2)	266 (1.6)	97 (0.6)	69 (2.0)	16 (1.3)	1 (0.2)
Rhode Island	265 (0.7) »	97 (0.4) >	68 (1.2) »	15 (0.9)	0 (0.2)	260 (0.6)	95 (0.5)	61 (0.7)	14 (0.7)	0 (0.2)
South Carolina	260 (1.0)	96 (0.6)	60 (1.2)	14 (1.0)	0 (0.1)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	258 (1.4)	95 (0.6)	59 (1.8)	11 (1.0)	0 (0.1)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	264 (1.3) >	96 (0.4)	64 (1.5)	17 (1.2) >	1 (0.3)	258 (1.4)	95 (0.8)	59 (1.6)	12 (1.1)	0 (0.2)
Utah	274 (0.7)	99 (0.3)	78 (1.1)	21 (1.1)	0 (0.2)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	267 (1.2)	97 (0.3)	68 (1.4)	18 (1.0)	1 (0.2)	264 (1.5)	97 (0.5)	64 (1.5)	17 (1.5)	1 (0.4)
West Virginia	258 (1.0)	97 (0.5)	60 (1.6)	9 (0.8)	0 (0.0)	256 (1.0)	96 (0.6)	57 (1.4)	9 (0.8)	0 (0.1)
Wisconsin	277 (1.5)	98 (0.4)	80 (1.8)	26 (1.3)	1 (0.2)	274 (1.3)	99 (0.4)	78 (1.5)	22 (1.4)	1 (0.2)
Wyoming	274 (0.9) >	99 (0.3)	79 (1.1)	19 (0.9)	0 (0.2)	272 (0.7)	99 (0.2)	78 (1.0)	18 (0.9)	0 (0.1)
TERRITORIES										
Guam	234 (1.0) >	80 (1.1)	34 (1.4)	5 (0.6)	0 (0.1)	232 (0.7)	79 (1.0)	32 (1.2)	4 (0.3)	0 (0.1)
Virgin Islands	222 (1.1) >	76 (1.7)	18 (1.4)	1 (0.3)	0 (0.0)	219 (0.9)	74 (1.3)	14 (1.0)	1 (0.3)	0 (0.0)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated. (xxx) Did not participate in the 1990 Trial State Assessment.

At grade 4, for the nation, 72 percent of the students were estimated to have performed at or above Level 200, demonstrating some success with addition and subtraction of whole numbers, including simple problem solving. This represented an increase compared to 1990, when 67 percent of the fourth graders were estimated to be at or above this level. For the states, the percentages of students performing at or above Level 200 were estimated to have ranged from 50 to 86 percent. The percentages of students performing at or above this level were lower for the District of Columbia (37 percent) and Guam (40 percent).

Seventeen percent of the fourth graders nationally (16 percent for state comparison purposes) were estimated to be at or above Level 250, indicating some success with all four operations with whole numbers, including some two-step problems. For the nation as a whole, this represented an improvement from 1990, when approximately 12 percent of the fourth graders performed at or above Level 250. Across participating jurisdictions, there was quite a range in performance: 4 to 26 percent of the students were estimated to have performed at or above this level.

Virtually no fourth graders performed at or above Level 300 in the nation in either 1992 or 1990, or in the states in 1992. Nevertheless, an estimated 1 percent of the fourth graders in Connecticut, Maine, and Virginia did reach this level.

At grade 8, for the nation, it was estimated that almost all students performed at or above Level 200 in both 1992 and 1990. This result was also true for the states in general (from 90 to 100 percent), except in the District of Columbia or the territories where smaller percentages were estimated to have reached this level in either 1992 or 1990 (from 74 to 83 percent). Hawaii, North Carolina, and Rhode Island showed improvement between assessments at Level 200.

Two-thirds of the eighth graders nationally were estimated to be at or above Level 250 in 1992, and this represented essentially no change from 1990. As in 1990, performance in 1992 showed considerable differences among participating jurisdictions at Level 250. For example, it was estimated that Idaho, Iowa, Maine, Minnesota, Nebraska, New Hampshire, North Dakota, and Wisconsin had 80 percent or more of their eighth graders performing at or above Level 250. In contrast, 50 percent or fewer of the eighth graders were estimated to have reached this level in the District of Columbia, Louisiana, Mississippi, Guam, and the Virgin Islands. Between 1990 and 1992, ten states showed increased percentages of their students performing at or above Level

250 -- Colorado, the District of Columbia, Hawaii, Iowa, Kentucky, Minnesota, New Hampshire, North Carolina, Oklahoma, and Rhode Island.

Nationally, about one-fifth of the eighth graders were estimated to be at or above Level 300. Compared to 1990, the nation as a whole and six states -- Colorado, Iowa, Minnesota, New York, North Carolina, and Texas -- showed improved performance at this level. Still in 1992, the top-performing states had only approximately one-fourth of their students estimated to have reached this level, which is typified by an understanding of mathematics beyond whole numbers including fractions, decimals, and percents as well as some familiarity with elementary concepts in geometry, statistics, and algebra. At best, across the two assessments in the nation and participating jurisdictions, an estimated 1 percent of the eighth graders performed at or above level 350.

Several states showed gains at more than one anchor level for their eighth graders, indicating movement across the distribution of mathematical achievement: Hawaii and Rhode Island at Levels 200 and 250; Colorado, Iowa, and Minnesota at Levels 250 and 300; and North Carolina at Levels 200, 250, and 300.

At grade 12, it was estimated that about 90 percent of the students performed at or above Level 250 in both assessments. The percentage estimated to be at or above Level 300 rose from 45 percent in 1990 to 50 percent in 1992. The estimated percentage attaining Level 350, characterized by reasoning and problem solving involving geometric relationships, algebra, and functions, remained essentially constant from 1990 to 1992 -- at about 5 to 6 percent.

Performance at Each Anchor Level and Example Items

The next section describes performance at each of the anchor levels in some detail, providing several example questions that typify the range of performance at that level. That is, each level is illustrated by tasks that were performed correctly by about 60 percent to nearly all of the students at that level, and that were more difficult for students at the lower levels. The full set of anchor questions released to the public is contained in the *1992 Mathematics Data Compendium for the Nation and the States.*[25]

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[25] National Center for Education Statistics, *1992 Mathematics Data Compendium for the Nation and the States* (Washington, D.C.: Author, U.S. Government Printing Office, 1993).

Level 200

Addition and Subtraction, and Simple Problem Solving With Whole Numbers

Performance at Level 200 is typified by a grasp of how to compute with whole numbers and perform simple word problems involving addition and subtraction. Students at this level also showed familiarity with the attributes of length and weight and were able to recognize simple geometric figures and visual patterns.

Nationally, more fourth graders were estimated to have performed at or above this level in 1992 than in 1990, 72 compared to 67 percent. Most eighth graders and all the twelfth graders performed at this level in both assessments. For the jurisdictions participating in the Trial State Assessments, there was considerable variation in the percentages of fourth graders estimated to have reached this level -- from 37 to 86 percent. With the exception of the District of Columbia and the two participating territories, 90 percent or more of the eighth graders were estimated to be at or above this level. In each jurisdiction, performance at this level was virtually equivalent in the two assessments, with the exception of increases for Hawaii, North Carolina, and Rhode Island.

The following questions from the assessment illustrate the range of questions likely to be answered correctly by students performing at or above Level 200. Because the percentage correct for each question includes all the students in the assessment, and not just those performing at the anchor level being described, the percentage of students across the nation answering a question correctly -- regardless of mathematics proficiency on the NAEP scale -- will usually differ from the percentage attaining that anchor level. For example, at grade 4 about three-fourths of the students were estimated to be at or above Level 200. These students were likely to answer the question shown below correctly, but so were some of the other students not reaching 200. Thus, keep in mind that the percentage of students attaining an anchor level and the percentage of students answering an item correctly -- based on **all** the students assessed regardless of achievement on the scale -- can be different. The first describes the percentage of students demonstrating relatively consistent performance over a collection of tasks; the second shows the percentage of the population that answered the specific question correctly. The standard errors for the percentages of students answering items correctly are shown in parentheses.

The first question shown below exemplifies the type of whole number computation tasks that could be performed successfully by students performing at or above Level 200. Although the addition and subtraction computations were performed successfully without the availability of a calculator, calculators were provided for some parts of the assessment, as illustrated by the division problem shown below.[26]

EXAMPLE: Level 200

Divide 108 by 9.

Answer: 12

Did you use the calculator on this question?

[✓ Yes] No

Overall Percent Correct*

Grade 4: 89(0.7)

Conditional-Level 200

Grade 4: 89%

Students performing at or above Level 200 were also able to recognize numbers from their written forms, solve simple word problems, and recognize patterns as shown by the following examples.

EXAMPLE: Level 200

What number is four hundred five and three-tenths?

A 45.3

[✓ B] 405.3

C 453

D 4,005.3

Overall Percent Correct*

Grade 4: 69(1.4)

Grade 8: 93(0.6)

Conditional-Level 200

Grade 4: 59%

Grade 8: --

* The standard errors of the estimated percentages appear in parentheses.
-- Insufficient number of respondents at Level 200.

---

[26] In 1992, there were 13 sections of mathematics questions in the assessment at each grade level and the estimation section. Students at grades 4 and 8 were given calculators to use on three of the 13 sections; at grade 12, calculators were available for four of these sections. The test administrator provided students with instructions and practice on how to use the calculator prior to the assessment. During the assessment, students receiving calculator sections were allowed to choose whether or not to use the calculator for each item in the section, and they were asked to indicate in their test booklets whether they did or did not use it for each item.

EXAMPLE: Level 200

There are 50 hamburgers to serve 38 children. If each child is to have at least one hamburger, at most how many of the children can have more than one?

A 6

[✓ B] 12

C 26

D 38

Overall Percent Correct*

Grade 4: 67(1.5)

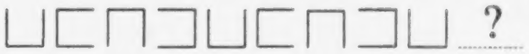
Grade 8: 92(0.8)

Conditional-Level 200

Grade 4: 59%

Grade 8: --

EXAMPLE: Level 200



In the pattern above, which figure would be next?

A

[✓ B]

C

D

Overall Percent Correct*

Grade 4: 91(0.8)

Grade 8: 96(0.5)

Conditional-Level 200

Grade 4: 90%

Grade 8: --

---

* The standard errors of the estimated percentages appear in parentheses.

-- Insufficient number of respondents at Level 200.

Level 250

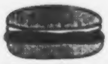
Multiplication and Division, Simple Measurement, and Two-Step Problem Solving

Performance at Level 250 was typified by some facility with all four operations in solving various two-step word problems involving whole numbers. Students at this level also seemed familiar with using a ruler, and showed some knowledge of common geometric shapes. They completed a variety of bar graphs and pictographs, and showed some degree of success with problems involving simple number patterns, as well as the ideas of variable and probability.

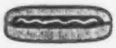
For the nation, performance at this level improved for fourth graders between 1990 and 1992, from an estimated 12 to 17 percent. About two-thirds of the eighth graders and 90 percent of the twelfth graders were estimated to have performed at this level in both assessments. For the jurisdictions participating in the Trial State Assessments, there was quite a range in the estimated percentages of fourth graders reaching this level -- from 4 to 26 percent. Those having 10 percent or fewer fourth graders estimated to be at or above Level 250 included Alabama, Arkansas, the District of Columbia, Louisiana, Mississippi, New Mexico, Tennessee, and Guam. Those with an estimated 20 percent or more of their fourth graders performing above this level included Connecticut, Iowa, Maine, Massachusetts, Minnesota, Nebraska, New Hampshire, New Jersey, North Dakota, Pennsylvania, and Wisconsin. At grade 8, the percentage of students attaining Level 250 was estimated to have ranged from 18 percent in the Virgin Islands, to about one-third in the District of Columbia and Guam, to about half in Alabama and Louisiana, to more than four-fifths in Iowa and North Dakota. Improvement between 1990 and 1992 was shown by more participating jurisdictions at this anchor level than at others. Ten states, including Colorado, the District of Columbia, Hawaii, Iowa, Kentucky, Minnesota, New Hampshire, New York, North Carolina, and Oklahoma, showed gains at Level 250.

The following set of questions is illustrative of performance at Level 250 and demonstrates students' ability to work with whole numbers in several different simple settings, including from a table or reading a scale.

EXAMPLE: Level 250



Cheeseburger
393 Calories



Hot Dog
298 Calories

Yogurt
214 Calories

Cookie
119 Calories

Which two of the items above would provide a total of about 600 calories?

Answer: Cheeseburger

Yogurt

(One possible answer)

Did you use the calculator on this question?

[✓ Yes] No

Overall Percent Correct*

Grade 4: 45(1.4)

Conditional-Level 250

Grade 4: 67%

EXAMPLE: Level 250

POINTS EARNED FROM SCHOOL EVENTS

Class	Mathathon	Readathon
Mr. Lopez	425	411
Ms. Chen	328	456
Mrs. Green	447	342

What was the total number of points earned from the mathathon?

Answer: 1200

Did you use the calculator on this question?

Yes No

Ms. Chen's class earned how many more points from the readathon than from the mathathon?

Answer: 128

Did you use the calculator on this question?

[✓ Yes] No

Overall Percent Correct*

Grade 4

Part One: 52(1.5)

Part Two: 49(1.7)

Conditional-Level 250

Grade 4

Part One: 72%

Part Two: 78%

---

* The standard errors of the estimated percentages appear in parentheses.

EXAMPLE: Level 250

Overall Percent Correct*

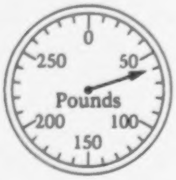
Grade 4: 44(1.5)

Grade 8: 79(1.2)

Conditional-Level 250

Grade 4: 63%

Grade 8: 77%



What is the weight shown on the scale?

A 6 pounds

B 7 pounds

C 51 pounds

[✓ D] 60 pounds

The following questions illustrate situations where students were asked to draw their responses. These included understanding common geometric shapes (a square), measuring centimeters with a ruler, and applying the concept of area.

EXAMPLE: Level 250

Overall Percent Correct*

Grade 4: 40(1.1)

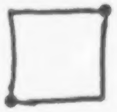
Grade 8: 67(1.5)

Conditional-Level 250

Grade 4: 62%

Grade 8: 63%

In the space below, use your ruler to draw a square with two of its corners at the points shown.



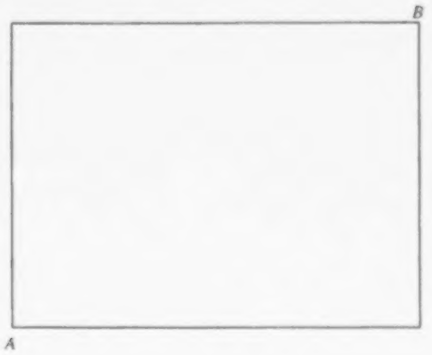
(One possible answer)

---

* The standard errors of the estimated percentages appear in parentheses.

EXAMPLE: Level 250

(Size reduced from original)



Use your centimeter ruler to make the following measurements to the nearest centimeter.

What is the length in centimeters of one of the longer sides of the rectangle?

Answer: 8 centimeters

What is the length in centimeters of the diagonal from *A* to *B* ?

Answer: 10 centimeters

Overall Percent Correct*

Grade 4

Part One: 52(1.5)
Part Two: 60(1.2)

Grade 8

Part One: 71(1.5)
Part Two: 79(1.1)

Conditional-Level 250

Grade 4

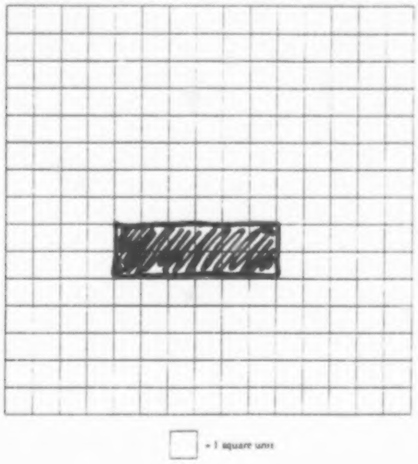
Part One: 86%
Part Two: 89%

Grade 8

Part One: 64%
Part Two: 75%

EXAMPLE: Level 250

On the grid below, draw a rectangle with an area of 12 square units.



(One possible answer)

Overall Percent Correct*

Grade 4: 42(1.4)

Grade 8: 66(1.5)

Conditional-Level 250

Grade 4: 62%

Grade 8: 59%

---

* The standard errors of the estimated percentages appear in parentheses.

The next three questions illustrate the emerging understanding of variables demonstrated by students performing at or above Level 250.

EXAMPLE: Level 250

In the multiplication problem below, write the missing number in the box.

$$\begin{array}{r} 23\boxed{7} \\ \times\ 8 \\ \hline 1{,}896 \end{array}$$

Did you use the calculator on this question?

Yes No

Overall Percent Correct*

Grade 4: 58(1.3)

Conditional-Level 250

Grade 4: 77%

EXAMPLE: Level 250

If $\square$ represents the number of newspapers that Lee delivers each day, which of the following represents the total number of newspapers that Lee delivers in 5 days?

A $5 + \square$

[✓ B] $5 \times \square$

C $\square - 5$

D $(\square + \square) \times 5$

Overall Percent Correct*

Grade 4: 48(1.2)

Grade 8: 81(1.0)

Conditional-Level 250

Grade 4: 63%

Grade 8: 78%

EXAMPLE: Level 250

If k can be replaced by any number, how many different values can the expression $k + 6$ have?

A None

B One

C Six

D Seven

[✓ **E**] Infinitely many

Did you use the calculator on this question?

Yes [✓ No]

Overall Percent Correct*

Grade 8: 72(1.4)

Grade 12: 88(0.8)

Conditional-Level 250

Grade 8: 61%

Grade 12: 58%

---

* The standard errors of the estimated percentages appear in parentheses.

Level 300

Reasoning and Problem Solving Involving Fractions, Decimals, Percents and Elementary Concepts in Geometry, Statistics, and Algebra

Students performing at or above Level 300 demonstrated some reasoning ability in a variety of problem situations, including some that involved fractions, decimals, or percents. They also showed beginning understandings of concepts in geometry, statistics, and algebra. Probably because some of the concepts and skills typifying Level 300 occur in the curriculum after fourth grade, only a handful of fourth graders were estimated to have reached this level across the nation. The state results were similar; half a percent or fewer fourth graders were estimated to have attained this level in most jurisdictions, except in Connecticut, Maine, and Virginia, where 1 percent of the fourth graders were estimated to be at or above Level 300.

In 1992, it was estimated that 20 percent of the eighth graders and 50 percent of the twelfth graders nationally performed at or above Level 300. This represented an increase compared to 1990, when approximately 15 percent and 45 percent reached this level at grades 8 and 12, respectively. Of the participating states, Colorado, Iowa, Minnesota, New York, North Carolina, and Texas showed increases in the percentage of eighth graders performing at or above Level 300. Still, in 1992 the estimated percentages of students at grade 8 reaching this level ranged from 1 to 29, with the majority of the participants having fewer than one-fourth of their students reach this level on the scale.

The first set of questions shown below illustrates some increased understanding in the area of numbers and operations by students performing at or above Level 300 as compared to students performing at lower levels on the scale. For example, several of these problems involve fractions or multiple steps, and one involves calculating a percentage.

EXAMPLE: Level 300

Jill needs to earn $45.00 for a class trip. She earns $2.00 each day on Mondays, Tuesdays, and Wednesdays, and $3.00 each day on Thursdays, Fridays, and Saturdays. She does not work on Sundays. How many weeks will it take her to earn $45.00 ?

Answer: 3 weeks

Overall Percent Correct*

Grade 4: 22(1.4)

Grade 8: 59(1.4)

Conditional-Level 300

Grade 4: --

Grade 8: 76%

EXAMPLE: Level 300

Of the following, which is closest in value to 0.52 ?

A $\frac{1}{50}$

B $\frac{1}{5}$

C $\frac{1}{4}$

D $\frac{1}{3}$

[✓ E] $\frac{1}{2}$

Correct Percent Correct*

Grade 8: 51(1.7)

Conditional-Level 300

Grade 8: 75%

---

* The standard errors of the estimated percentages appear in parentheses.
-- Insufficient number of respondents at Level 300.

EXAMPLE: Level 300

Raymond must buy enough paper to print 28 copies of a report that contains 64 sheets of paper. Paper is only available in packages of 500 sheets. How many whole packages of paper will he need to buy to do the printing?

Answer: 4

Did you use the calculator on this question?

[✓ Yes] No

Overall Percent Correct*

Grade 8: 52(1.4)

Grade 12: 72(1.4)

Conditional-Level 300

Grade 8: 81%

Grade 12: 79%

EXAMPLE: Level 300

Ken bought a used car for $5,375. He had to pay an additional 15 percent of the purchase price to cover both sales tax and extra fees. Of the following, which is closest to the total amount Ken paid?

A $806

B $5,510

C $5,760

D $5,940

[✓ E] $6,180

Did you use the calculator on this question?

[✓ Yes] No

Overall Percent Correct*

Grade 8: 40(1.2)

Grade 12: 69(1.2)

Conditional-Level 300

Grade 8: 62%

Grade 12: 72%

The second set of example questions for Level 300 includes elementary concepts in geometry, data analysis, statistics, and algebra.

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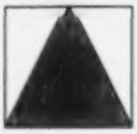
* The standard errors of the estimated percentages appear in parentheses.

EXAMPLE: Level 300



If the area of the shaded triangle shown above is 4 square inches, what is the area of the entire square?

A 4 square inches

[✓ B] 8 square inches

C 12 square inches

D 16 square inches

E Not enough information given

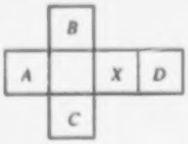
Overall Percent Correct*

Grade 8: [illegible]

Conditional-Level 300

Grade 8: 66%

EXAMPLE: Level 300



The squares in the figure above represent the faces of a cube which has been cut along some edges and flattened. When the original cube was resting on face *X*, which face was on top?

[✓ A] *A*

B *B*

C *C*

D *D*

Overall Percent Correct*

Grade 4: 22(1.4)

Grade 8: 55(1.6)

Conditional-Level 300

Grade 4: --

Grade 8: 84%

EXAMPLE: Level 300

In a bag of marbles, $\frac{1}{2}$ are red, $\frac{1}{4}$ are blue, $\frac{1}{6}$ are green, and $\frac{1}{12}$ are yellow. If a marble is taken from the bag without looking, it is most likely to be

[✓ A] red

B blue

C green

D yellow

Overall Percent Correct*

Grade 4: 25(1.4)

Grade 8: 73(1.4)

Conditional-Level 300

Grade 4: --

Grade 8: 98%

---

* The standard errors of the estimated percentages appear in parentheses.
-- Insufficient number of respondents at Level 300.

EXAMPLE: Level 300

Akira read from a book on Monday, Tuesday, and Wednesday. He read an average of 10 pages per day. Indicate in the ovals below whether each of the following is possible or not possible.

Possible	Not Possible		Pages Read		
			Monday	Tuesday	Wednesday
A	[✓ A]	(a)	4 pages	4 pages	2 pages
[✓ B]	B	(b)	9 pages	10 pages	11 pages
[✓ C]	C	(c)	5 pages	10 pages	15 pages
D	[✓ D]	(d)	10 pages	15 pages	20 pages

Overall Percent Correct*
All Four Parts

Grade 8: 38(1.6)

Each Part

A 57(1.5)
B 69(1.5)
C 61(1.7)
D 75(1.6)

Conditional-Level 300

Grade 8:

Each Part

A 83%
B 87%
C 82%
D 87%

EXAMPLE: Level 300

$$54 < 3 \times \square$$

Write two numbers that could be put in the ☐ to make the number sentence above true.

Answer: 1, 10 (one possible answer)

Overall Percent Correct*

Grade 8: 49(1.6)

Conditional-Level 300

Grade 8: 79%

---

* The standard errors of the estimated percentages appear in parentheses.

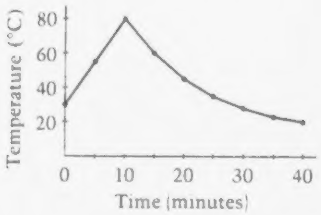
EXAMPLE: Level 300

Overall Percent Correct[*]

Grade 12: 74(1.4)

Conditional-Level

Grade 12: 77%



The graph above best conveys information about which of the following situations over a 40-minute period of time?

A Oven temperature while a cake is being baked

[✓ **B**] Temperature of water that is heated on a stove, then removed and allowed to cool

C Ocean temperature in February along the coast of Maine

D Body temperature of a person with a cold

E Temperature on a July day in Chicago

Did you use the calculator on this question?

Yes [✓ No]

---

[*] The standard errors of the estimated percentages appear in parentheses.

Level 350

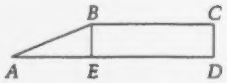
Reasoning and Problem Solving Involving Geometric Relationships, Algebra, and Functions

Students performing at or above Level 350 have extended their understanding of mathematics to include some specialized content, such as functional notation, rectangular coordinates, and linear equations. However, it was estimated that very few students -- 6 percent of the high-school seniors and 1 percent of the eighth graders -- attained this level. Further, these figures represent essentially no change from performance in 1990.

Participating jurisdictions also showed similar performance between 1992 and 1990, with at most an estimated 1 percent of the eighth graders in some of the states performing at or above Level 350 in either assessment.

The first set of illustrative items for Level 350 is indicative of the highest-performing students' understanding of geometric figures, properties, and relationships.

Example: Level 350



The area of rectangle *BCDE* shown above is 60 square inches. If the length of *AE* is 10 inches and the length of *ED* is 15 inches, what is the area of trapezoid *ABCD*, in square inches ?

Answer: 80

Did you use the calculator on this question?

Yes [✓ No]

Overall Percent Correct*

Grade 8: 10(0.9)

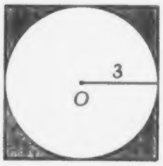
Grade 12: 23(1.6)

Conditional-Level 350

Grade 8: –

Grade 12: 79%

EXAMPLE: Level 350



In the figure above, a circle with center *O* and radius of length 3 is inscribed in a square. What is the area of the shaded region?

A 3.86

[✓ B] 7.73

C 28.27

D 32.86

E 36.00

Did you use the calculator on this question?

[✓ Yes] No

Overall Percent Correct*

Grade 8: 29(1.3)

Grade 12: 37(1.1)

Conditional-Level 350

Grade 8: –

Grade 12: 77%

---

* The standard errors of the estimated percentages appear in parentheses.
– Insufficient number of respondents at Level 350.

EXAMPLE: Level 350

In the *xy*-plane, a line parallel to the *x*-axis intersects the *y*-axis at the point (0, 4). This line also intersects a circle in two points. The circle has a radius of 5 and its center is at the origin. What are the coordinates of the two points of intersection?

A (1, 2) and (2, 1)

B (2, 1) and (2, −1)

C (3, 4) and (3, −4)

[✓ **D**] (3, 4) and (−3, 4)

E (5, 0) and (−5, 0)

Did you use the calculator on this question?

Yes [✓ No]

Overall Percent Correct*

Grade 12: 32(1.4)

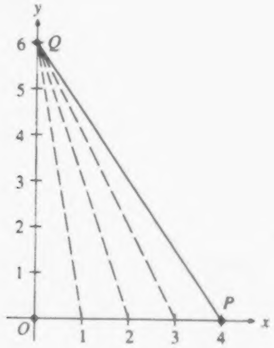
Conditional-Level 350

Grade 12: 79%

---

* The standard errors of the estimated percentages appear in parentheses.

EXAMPLE: Level 350



Overall Percent Correct*

Grade 12: 29(1.5)

Conditional-Level 350

Grade 12: 92%

In the figure above, point Q is fixed and point P starts at 4 and moves left along the x-axis. As P moves left along the x-axis toward O, the area of $\triangle POQ$ changes.

Use the information given to complete the table below to show how the area of $\triangle POQ$ changes as P goes from the position shown to the origin O.

x - coordinate of P	Area of ΔPOQ
4	12
3	9
2	6
1	3
0	0

* The standard errors of the estimated percentages appear in parentheses.

The three questions shown below exemplify some of the algebra and functions concepts that students performing at or above Level 350 appear to understand.

EXAMPLE: Level 350

If $f(x) = 4x^2 - 7x + 5.7$, what is the value of $f(3.5)$?

Answer: 30.2

Did you use the calculator on this question?

[✓ Yes] No

Overall Percent Correct[*]

Grade 12: 39(1.6)

Conditional-Level 350

Grade 12: 90%

EXAMPLE: Level 350

For what value of x is $8^{12} = 16^x$?

A 3

B 4

C 8

[✓ D] 9

E 12

Did you use the calculator on this question?

[✓ Yes] No

Overall Percent Correct[*]

Grade 12: 34(1.5)

Conditional-Level 350

Grade 12: 83%

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[*] The standard errors of the estimated percentages appear in parentheses.

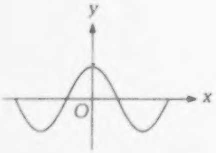
EXAMPLE: Level 350

Overall Percent Correct*

Grade 12: 20(1.3)

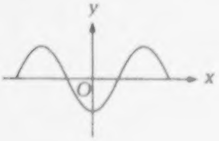
Conditional-Level 350

Grade 12: 60%

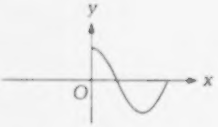


The figure above shows the graph of $y = f(x)$. Which of the following could be the graph of $y = |f(x)|$?

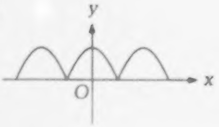
A



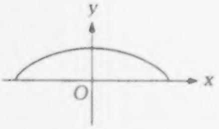
B



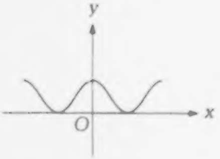
[✓ C]



D



E



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* The standard errors of the estimated percentages appear in parentheses.

Anchor-Level Results by Region

Across the regions, the anchor-level results show very little statistically significant change between 1992 and 1990 at any grade or particular level of performance, with the exception of a greater percentage of eighth-grade students estimated to have performed at or above Level 300 in the Central region (see TABLE A.3). The significant improvements in average proficiency shown for some regions at some grades appear to be reflected in slight, but not statistically significant, increases at several of the anchor levels.

TABLE A.3 Average Mathematics Proficiency and Anchor Levels by Region, Grades 4, 8, and 12

	Assessment Years	Percent of Students	Average Proficiency	Percentage of Students At or Above			
				Level 200	Level 250	Level 300	Level 350
Grade 4							
Northeast	**1992**	21(0.9)	223(2.0)>	76(2.4)	22(2.4)	1(0.3)	0(0.0)
	1990	22(1.0)	215(2.9)	70(4.0)	14(3.2)	0(0.1)	0(0.0)
Southeast	**1992**	24(0.9)	210(1.6)>	63(2.1)	10(1.4)	0(0.2)	0(0.0)
	1990	25(1.1)	205(2.7)	56(2.8)	8(1.5)	0(0.0)	0(0.0)
Central	**1992**	27(0.5)	223(1.9)>	79(2.5)	19(1.7)	0(0.1)	0(0.0)
	1990	25(0.8)	216(1.7)	72(2.9)	13(1.7)	0(0.3)	0(0.0)
West	**1992**	28(0.7)	218(1.5)	71(1.8)	16(1.9)	0(0.3)	0(0.0)
	1990	28(0.8)	216(2.4)	71(2.7)	14(2.2)	0(0.2)	0(0.0)
Grade 8							
Northeast	**1992**	22(0.8)	269(2.7)	97(0.7)	68(3.2)	22(2.4)	1(0.4)
	1990	20(0.9)	270(2.8)	97(0.9)	72(3.3)	20(2.7)	1(0.4)
Southeast	**1992**	25(0.7)	260(1.4)	96(0.9)	61(1.6)	14(1.3)	0(0.1)
	1990	25(1.1)	255(2.5)	93(1.9)	56(2.9)	11(2.0)	0(0.3)
Central	**1992**	25(0.6)	274(1.9)>	98(0.6)	76(2.1)	23(2.3)>	1(0.3)
	1990	24(0.8)	266(2.3)	97(1.1)	70(2.6)	15(1.5)	0(0.4)
West	**1992**	28(0.7)	268(2.0)>	96(0.6)	68(2.2)	20(1.7)	1(0.3)
	1990	30(1.0)	261(2.6)	94(1.3)	63(2.6)	14(2.0)	1(0.4)
Grade 12							
Northeast	**1992**	24(0.6)	302(1.5)	100(0.2)	92(0.7)	54(2.0)	8(1.0)
	1990	24(1.2)	300(2.3)	100(0.2)	90(1.2)	51(3.0)	8(1.8)
Southeast	**1992**	24(0.6)	291(1.4)>	100(0.2)	88(1.3)	41(2.2)	4(0.5)
	1990	20(1.1)	284(2.2)	100(0.3)	83(2.0)	32(2.9)	2(0.5)
Central	**1992**	25(0.6)	303(1.8)	100(0.0)	94(0.8)	55(2.6)	7(0.8)
	1990	27(0.8)	297(2.6)	99(0.4)	91(1.8)	49(3.3)	4(1.5)
West	**1992**	27(0.9)	298(1.7)	100(0.2)	92(1.0)	49(1.9)	6(1.1)
	1990	29(1.2)	294(2.6)	100(0.4)	88(1.4)	45(3.2)	6(1.4)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details). When the proportion of students is either 0 percent of 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 percent or less were rounded to 0 percent.

Anchor Level Results by Race/Ethnicity

The anchor level results by race/ethnicity are presented for the nation in TABLE A.4 and for the states in TABLE A.5. In general, for the nation and the states, the data parallel those discussed earlier in the body of this report. Greater percentages of White and Asian/Pacific Islander students were estimated to have reached higher anchor levels on the scale than did their Black, Hispanic, and American Indian counterparts. This pattern did not change between the two assessments. The average proficiency of White students improved at all three grade levels assessed, and these increases were accompanied by greater percentages of fourth graders performing at Levels 200 and 250 as well as greater percentages of eighth and twelfth graders performing at Levels 250 and 300. Although Black and Hispanic twelfth graders also showed significant improvement in their average achievement, the apparent increases noted at Levels 200 and 250 were not statistically significant.

Within the states, in both 1992 and 1990, the relative standing of the racial/ethnic groups tended to parallel that of the nation, although in a number of states, greater percentages of Asian/Pacific Islander students reached higher anchor levels than did their White counterparts. At grade 8, more gains were shown between 1990 and 1992 by White students across the anchor levels than by their counterparts of other racial/ethnic backgrounds, although in some states there were too few respondents in particular race/ethnicity classifications to estimate proficiency accurately and, because of the sample sizes, certain differences were not statistically significant.[27] White students showed improvement at Level 250 in Connecticut, Florida, Iowa, Michigan, New Hampshire, and Rhode Island; and at Level 300 in Connecticut, Florida, and Minnesota. Black students in the District of Columbia showed gains at Level 250. In Hawaii, Asian/Pacific Islander students had increased performance at both Levels 200 and 250. At Level 250, American Indian students showed improvements in Arizona and North Dakota, although in the latter case the results may be less stable.

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[27] For results to be reported for any subgroup, a minimum sample size of 62 students was required (see Appendix D for details).

TABLE A.4 Average Mathematics Proficiency and Anchor Levels by Race/Ethnicity, Grades 4, 8, and 12

	Assessment Years	Percent of Students	Average Proficiency	Percentage of Students At or Above			
				Level 200	Level 250	Level 300	Level 350
Grade 4							
White	**1992**	70(0.2)	227(0.9)>	82(0.9)>	21(1.2)>	0(0.1)	0(0.0)
	1990	70(0.2)	220(1.1)	77(1.6)	16(1.5)	0(0.1)	0(0.0)
Black	**1992**	16(0.1)	192(1.3)	39(2.4)	2(0.7)	0(0.0)	0(0.0)
	1990	15(0.1)	189(1.8)	36(2.6)	1(0.5)	0(0.0)	0(0.0)
Hispanic	**1992**	10(0.2)	201(1.4)	52(2.1)	5(1.0)	0(0.1)	0(0.0)
	1990	10(0.2)	198(2.0)	50(3.0)	4(1.1)	0(0.0)	0(0.0)
Asian/Pacific Islander	**1992**	2(0.2)	231(2.4)	84(2.5)	28(4.3)	1(1.1)	0(0.0)
	1990	2(0.2)	228(3.5)	82(6.0)	23(5.6)	0(0.6)	0(0.0)
American Indian	**1992**	2(0.2)	209(3.2)	63(5.1)	9(3.7)	0(0.4)	0(0.0)
	1990	2(0.2)	208(3.9)	61(6.5)	4(2.1)	0(0.0)	0(0.0)
Grade 8							
White	**1992**	70(0.2)	277(1.0)>	99(0.2)	79(1.1)>	25(1.1)>	1(0.2)
	1990	71(0.3)	270(1.4)	98(0.5)	74(1.5)	18(1.3)	1(0.3)
Black	**1992**	16(0.1)	237(1.4)	89(1.6)	33(2.2)	2(0.6)	0(0.2)
	1990	15(0.2)	238(2.7)	87(2.7)	34(3.2)	4(1.0)	0(0.0)
Hispanic	**1992**	10(0.2)	246(1.2)	91(1.2)	46(1.9)	6(0.7)	0(0.2)
	1990	10(0.2)	244(2.8)	90(1.9)	45(3.9)	4(1.2)	0(0.1)
Asian/Pacific Islander	**1992**	2(0.2)	288(5.5)!	99(0.9)	84(4.5)	39(6.8)	4(1.9)
	1990	2(0.5)	279(4.8)	97(2.4)	79(5.4)	30(5.2)	1(0.7)
American Indian	**1992**	1(0.2)	254(2.8)	98(1.1)	54(5.8)	6(3.4)	0(0.0)
	1990	2(0.6)	246(9.4)!	93(3.3)	47(12.6)	6(4.8)	0(0.0)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. ! Interpret with caution -- the nature of the sample does not allow accurate determination of the variability of this estimated statistic. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details). When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 percent or less were rounded to 0 percent.

TABLE A.4 Average Mathematics Proficiency and Anchor Levels by Race/Ethnicity, Grades 4, 8, and 12 (continued)

	Assessment Years	Percent of Students	Average Proficiency	Percentage of Students At or Above			
				Level 200	Level 250	Level 300	Level 350
Grade 12							
White	1992	71(0.6)	305(0.9)>	100(0.1)	95(0.4)>	58(1.1)>	8(0.6)
	1990	74(0.6)	300(1.2)	100(0.1)	92(0.8)	52(1.5)	6(1.0)
Black	1992	15(0.4)	275(1.7)>	100(0.2)	78(2.1)	22(2.3)	1(0.3)
	1990	14(0.5)	268(1.9)	98(0.8)	71(3.2)	16(2.3)	0(0.4)
Hispanic	1992	10(0.5)	283(1.8)>	100(0.5)	84(2.3)	30(2.6)	2(0.8)
	1990	8(0.2)	276(2.8)	99(1.2)	77(3.6)	24(4.0)	2(0.7)
Asian/Pacific Islander	1992	4(0.2)	315(3.5)	100(0.0)	98(0.9)	68(4.3)	15(4.3)
	1990	3(0.3)	311(5.2)	100(0.0)	94(1.9)	66(5.8)	13(7.9)
American Indian	1992	1(0.1)	281(9.0)	99(5.0)	81(9.2)	32(10.3)	1(1.2)
	1990	1(0.3)	288(10.2)!	95(4.1)	83(7.7)	49(16.3)	0(0.0)

TABLE A.5 | Anchor Levels by Race/Ethnicity

PUBLIC SCHOOLS	Grade 4 - 1992									
	Percentage of Students At or Above Level 200					Percentage of Students At or Above Level 250				
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	White	Black	Hispanic	Asian / Pacific Islander	American Indian
NATION	82 (1.1)	38 (2.4)	49 (2.2)	85 (2.5)	62 (5.5)	21 (1.3)	2 (0.7)	4 (0.9)	28 (4.6)	10 (3.9)
Northeast	85 (2.0)	43 (4.6)	49 (6.6)	*** (***)	*** (***)	28 (3.4)	3 (1.5)	4 (1.6)	*** (***)	*** (***)
Southeast	75 (2.4)	36 (3.5)	50 (5.8)	*** (***)	*** (***)	14 (2.4)	2 (0.9)	5 (1.9)	*** (***)	*** (***)
Central	85 (2.5)	39 (5.8)	49 (5.1)	*** (***)	*** (***)	22 (2.4)	2 (1.9)	4 (3.4)	*** (***)	*** (***)
West	80 (2.1)	33 (6.6)	50 (3.0)	86 (3.4)	*** (***)	19 (2.7)	2 (1.4)	4 (1.5)	28 (5.2)	*** (***)
STATES										
Alabama	73 (2.0)	31 (1.7)	40 (6.6)	*** (***)	*** (***)	14 (1.5)	1 (0.5)	2 (1.2)	*** (***)	*** (***)
Arizona	81 (1.1)	47 (5.6)	53 (2.4)	*** (***)	37 (4.8)	18 (1.1)	3 (2.6)	4 (0.8)	*** (***)	3 (1.6)
Arkansas	73 (1.5)	32 (2.4)	45 (4.6)	*** (***)	65 (5.9)	12 (0.9)	1 (0.6)	1 (1.1)	*** (***)	8 (4.4)
California	75 (2.3)	33 (4.0)	41 (2.4)	77 (2.5)	63 (7.3)	17 (1.6)	2 (1.0)	3 (0.8)	19 (3.6)	9 (6.0)
Colorado	82 (1.2)	51 (6.0)	57 (2.5)	76 (6.8)	69 (7.3)	21 (1.3)	2 (1.4)	6 (1.4)	22 (5.3)	9 (4.4)
Connecticut	89 (0.9)	40 (4.1)	54 (4.2)	*** (***)	*** (***)	29 (1.7)	2 (1.1)	7 (2.0)	*** (***)	*** (***)
Delaware	81 (1.1)	44 (3.1)	44 (3.6)	*** (***)	*** (***)	21 (1.5)	3 (0.9)	3 (2.7)	*** (***)	*** (***)
Dist. Columbia	82 (4.5)	34 (1.8)	26 (2.6)	*** (***)	*** (***)	50 (6.2)	2 (0.4)	2 (0.9)	*** (***)	*** (***)
Florida	80 (1.4)	36 (2.9)	59 (3.8)	*** (***)	*** (***)	17 (1.8)	2 (0.6)	7 (1.3)	*** (***)	*** (***)
Georgia	84 (1.4)	43 (2.3)	44 (4.9)	*** (***)	*** (***)	23 (1.6)	2 (0.7)	4 (1.6)	*** (***)	*** (***)
Hawaii	72 (2.4)	48 (4.9)	48 (3.9)	68 (2.1)	*** (***)	19 (2.1)	4 (2.2)	6 (1.4)	14 (1.3)	*** (***)
Idaho	80 (1.4)	*** (***)	53 (4.4)	*** (***)	72 (6.0)	16 (1.1)	*** (***)	4 (1.3)	*** (***)	4 (3.0)
Indiana	80 (1.3)	39 (4.4)	65 (4.1)	*** (***)	*** (***)	17 (1.2)	2 (0.7)	3 (1.7)	*** (***)	*** (***)
Iowa	86 (1.0)	40 (6.9)!	76 (4.3)	*** (***)	*** (***)	26 (1.2)	2 (1.9)!	13 (3.5)	*** (***)	*** (***)
Kentucky	70 (1.4)	49 (4.7)	46 (4.4)	*** (***)	*** (***)	13 (1.1)	3 (2.0)	4 (2.4)	*** (***)	*** (***)
Louisiana	74 (2.2)	31 (1.9)	48 (6.2)	*** (***)	*** (***)	12 (1.3)	2 (0.4)	5 (1.9)	*** (***)	*** (***)
Maine	87 (1.0)	*** (***)	76 (4.4)	*** (***)	*** (***)	27 (1.7)	*** (***)	12 (5.2)	*** (***)	*** (***)
Maryland	81 (1.4)	41 (2.3)	56 (4.6)	85 (3.7)	*** (***)	25 (1.6)	3 (0.7)	9 (2.9)	31 (5.7)	*** (***)
Massachusetts	86 (0.8)	39 (5.2)	55 (4.2)	77 (7.9)	*** (***)	25 (1.6)	2 (1.4)	8 (2.4)	28 (8.1)	*** (***)
Michigan	83 (1.5)	31 (4.5)	56 (4.3)	*** (***)	67 (6.0)	21 (1.9)	2 (1.1)	7 (2.1)	*** (***)	6 (3.3)
Minnesota	85 (1.1)	40 (6.6)	55 (5.5)	*** (***)	*** (***)	27 (1.2)	4 (1.9)	10 (2.3)	*** (***)	*** (***)
Mississippi	73 (2.1)	34 (2.0)	31 (4.3)	*** (***)	*** (***)	12 (1.2)	1 (0.4)	2 (1.3)	*** (***)	*** (***)
Missouri	84 (1.5)	44 (3.2)	58 (4.5)	*** (***)	*** (***)	21 (1.4)	1 (0.6)	10 (2.8)	*** (***)	*** (***)
Nebraska	83 (1.4)	31 (4.5)	61 (5.4)	*** (***)	*** (***)	23 (1.7)	3 (2.4)	8 (3.2)	*** (***)	*** (***)
New Hampshire	85 (1.1)	*** (***)	71 (5.9)	*** (***)	*** (***)	25 (1.6)	*** (***)	10 (3.1)	*** (***)	*** (***)
New Jersey	91 (1.1)	47 (4.3)	57 (3.7)	92 (4.2)	*** (***)	30 (2.0)	2 (1.1)	5 (2.0)	36 (4.6)	*** (***)
New Mexico	80 (1.5)	58 (7.2)	52 (2.9)	*** (***)	62 (7.4)!	18 (2.1)	3 (2.7)	4 (1.1)	*** (***)	3 (2.0)!
New York	84 (1.5)	48 (4.5)	48 (3.2)	83 (5.2)!	*** (***)	22 (1.0)	3 (1.4)	4 (1.1)	35 (5.7)!	*** (***)
North Carolina	78 (1.4)	38 (2.5)	48 (6.8)	*** (***)	53 (9.0)!	17 (1.1)	2 (0.6)	6 (2.4)	*** (***)	7 (4.1)!
North Dakota	86 (0.8)	*** (***)	73 (6.8)	*** (***)	66 (8.1)!	22 (1.2)	*** (***)	6 (2.4)	*** (***)	7 (3.3)!
Ohio	76 (1.4)	38 (4.3)	61 (5.9)	*** (***)	75 (6.3)	17 (1.3)	3 (1.0)	7 (1.9)	*** (***)	11 (5.2)
Oklahoma	82 (1.3)	48 (5.2)	64 (3.6)	*** (***)	66 (4.4)	15 (1.3)	2 (1.3)	6 (2.8)	*** (***)	6 (2.0)
Pennsylvania	86 (1.3)	39 (4.1)	54 (3.5)	*** (***)	*** (***)	25 (1.4)	2 (0.8)	7 (2.3)	*** (***)	*** (***)
Rhode Island	77 (1.5)	36 (4.9)	35 (3.8)	39 (7.9)	*** (***)	15 (1.3)	2 (1.5)	1 (0.8)	1 (1.5)	*** (***)
South Carolina	80 (1.2)	39 (1.6)	46 (4.7)	*** (***)	*** (***)	19 (1.7)	2 (0.5)	6 (2.1)	*** (***)	*** (***)
Tennessee	73 (1.6)	37 (3.0)	39 (7.0)	*** (***)	*** (***)	12 (1.2)	1 (0.6)	2 (2.0)	*** (***)	*** (***)
Texas	84 (1.8)	47 (3.3)	61 (3.1)	86 (4.9)	*** (***)	22 (2.0)	3 (1.0)	7 (1.2)	33 (8.0)	*** (***)
Utah	81 (1.2)	*** (***)	61 (3.7)	*** (***)	*** (***)	19 (1.1)	*** (***)	7 (1.9)	*** (***)	*** (***)
Virginia	82 (1.5)	44 (3.1)	65 (6.4)	92 (3.5)	*** (***)	23 (2.0)	3 (0.9)	8 (3.2)	25 (7.3)	*** (***)
West Virginia	69 (1.5)	54 (9.5)	54 (5.2)	*** (***)	*** (***)	12 (0.9)	2 (1.7)	5 (2.6)	*** (***)	*** (***)
Wisconsin	89 (0.9)	41 (5.6)	67 (5.1)	*** (***)	58(12.1)!	27 (1.5)	2 (1.0)	9 (2.6)	*** (***)	5 (2.7)!
Wyoming	84 (1.2)	*** (***)	72 (3.0)	*** (***)	64 (6.2)!	19 (1.4)	*** (***)	7 (1.7)	*** (***)	9 (3.2)!
TERRITORY										
Guam	58 (3.3)	32 (5.7)	26 (2.5)	42 (1.7)	*** (***)	10 (1.7)	2 (2.4)	2 (0.8)	4 (0.7)	*** (***)

The standard errors of the estimated percentages appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. ***Sample size insufficient to permit reliable estimate. There were fewer than 62 students. ! Interpret with caution - the nature of the sample does not allow accurate determination of the variability of this estimated statistic.

TABLE A.5 | Anchor Levels by Race/Ethnicity (continued)

PUBLIC SCHOOLS	Grade 4 - 1992									
	Percentage of Students At or Above Level 300					Percentage of Students At or Above Level 350				
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	White	Black	Hispanic	Asian / Pacific Islander	American Indian
NATION	0 (0.1)	0 (0.0)	0 (0.1)	1 (1.1)	0 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Northeast	1 (0.5)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Southeast	0 (0.4)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Central	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
West	1 (0.5)	0 (0.0)	0 (0.2)	1 (1.6)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)
STATES										
Alabama	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Arizona	0 (0.1)	0 (0.0)	0 (0.1)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)
Arkansas	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)
California	0 (0.2)	0 (0.0)	0 (0.0)	1 (0.7)	0 (0.7)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Colorado	0 (0.1)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Connecticut	1 (0.4)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Delaware	0 (0.2)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Dist. Columbia	2 (1.8)	0 (0.1)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Florida	0 (0.2)	0 (0.0)	0 (0.3)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Georgia	0 (0.2)	0 (0.1)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Hawaii	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.1)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)
Idaho	0 (0.1)	*** (***)	0 (0.0)	*** (***)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)	*** (***)	0 (0.0)
Indiana	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Iowa	0 (0.2)	0 (0.0)!	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)!	0 (0.0)	*** (***)	*** (***)
Kentucky	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Louisiana	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Maine	1 (0.2)	*** (***)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	*** (***)	0 (0.0)	*** (***)	*** (***)
Maryland	1 (0.3)	0 (0.0)	0 (0.0)	2 (1.5)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)
Massachusetts	0 (0.2)	0 (0.0)	0 (0.0)	3 (2.1)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)
Michigan	0 (0.2)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)
Minnesota	0 (0.1)	0 (0.6)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Mississippi	0 (0.2)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Missouri	0 (0.2)	0 (0.0)	0 (0.4)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Nebraska	0 (0.2)	0 (0.0)	0 (0.3)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
New Hampshire	0 (0.2)	*** (***)	0 (1.2)	*** (***)	*** (***)	0 (0.0)	*** (***)	0 (0.0)	*** (***)	*** (***)
New Jersey	0 (0.2)	0 (0.0)	0 (0.1)	1 (1.6)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)
New Mexico	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)!	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)!
New York	0 (0.2)	0 (0.0)	0 (0.0)	2 (1.7)!	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)!	*** (***)
North Carolina	0 (0.2)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)!	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)!
North Dakota	0 (0.1)	*** (***)	0 (0.0)	*** (***)	0 (0.0)!	0 (0.0)	*** (***)	0 (0.0)	*** (***)	0 (0.0)!
Ohio	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	0 (0.9)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)
Oklahoma	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)
Pennsylvania	0 (0.2)	0 (0.0)	0 (0.2)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Rhode Island	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)
South Carolina	0 (0.1)	0 (0.1)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Tennessee	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Texas	0 (0.1)	0 (0.0)	0 (0.0)	1 (1.9)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)
Utah	0 (0.2)	*** (***)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	*** (***)	0 (0.0)	*** (***)	*** (***)
Virginia	1 (0.3)	0 (0.0)	0 (0.0)	2 (2.4)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)
West Virginia	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Wisconsin	0 (0.2)	0 (0.0)	0 (0.2)	*** (***)	0 (0.0)!	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)!
Wyoming	0 (0.1)	*** (***)	0 (0.0)	*** (***)	0 (0.0)!	0 (0.0)	*** (***)	0 (0.0)	*** (***)	0 (0.0)!
TERRITORY										
Guam	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.1)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)

TABLE A.5 | Anchor Levels by Race/Ethnicity (continued)

PUBLIC SCHOOLS	Grade 8 - 1992									
	Percentage of Students At or Above Level 200					Percentage of Students At or Above Level 250				
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	White	Black	Hispanic	Asian / Pacific Islander	American Indian
NATION	99 (0.2)	88 (1.7)	91 (1.4)	99 (1.1)	98 (1.0)	78 (1.2)	32 (2.3)	44 (2.1)	83 (5.2)	53 (6.2)
Northeast	99 (0.6)	91 (4.3)	88 (3.4)!	*** (***)	*** (***)	77 (3.7)	35 (4.2)	39 (5.9)!	*** (***)	*** (***)
Southeast	99 (0.5)	88 (2.9)	86 (4.6)!	*** (***)	*** (***)	72 (1.6)	28 (2.6)	39 (6.5)!	*** (***)	*** (***)
Central	100 (0.2)	89 (2.7)	94 (5.5)	*** (***)	*** (***)	83 (2.1)	37 (6.9)	48 (7.6)	*** (***)	*** (***)
West	99 (0.4)	87 (4.2)	91 (1.5)	99 (1.6)	*** (***)	79 (2.7)	30 (5.6)	45 (2.4)	81 (8.2)	*** (***)
STATES										
Alabama	98 (0.5)	86 (2.8)	73 (6.9)	*** (***)	*** (***)	66 (1.8)	26 (2.5)	19 (5.2)	*** (***)	*** (***)
Arizona	99 (0.2)	97 (2.0)	93 (1.4)	*** (***)	93 (1.7)	80 (1.4)	52 (6.1)	47 (3.8)	*** (***)	54 (4.2)»
Arkansas	98 (0.5)	84 (2.2)	79 (4.7)	*** (***)	*** (***)	69 (1.5)	24 (2.7)	29 (4.6)	*** (***)	*** (***)
California	99 (0.4)	83 (4.3)	87 (1.9)	98 (0.8)	*** (***)	79 (2.2)	32 (4.8)	39 (2.2)	75 (3.7)	*** (***)
Colorado	99 (0.3)	90 (3.9)	95 (1.1)	*** (***)	*** (***)	82 (1.1)	39 (6.1)	56 (2.4)	*** (***)	*** (***)
Connecticut	99 (0.3)	92 (2.8)	90 (2.6)	98 (2.4)	*** (***)	85 (1.2) >	40 (4.5)	39 (3.8)	80 (7.5)	*** (***)
Delaware	99 (0.5)	90 (1.5)	86 (4.7)	*** (***)	*** (***)	76 (1.5)	38 (3.2)	37 (4.6)	*** (***)	*** (***)
Dist. Columbia	*** (***)	83 (1.1)	70 (4.1)	*** (***)	*** (***)	*** (***)	30 (1.3) >	28 (4.3)	*** (***)	*** (***)
Florida	98 (0.4)	86 (2.1)	91 (2.3)	*** (***)	*** (***)	76 (1.6) >	34 (3.5)	47 (3.3)	*** (***)	*** (***)
Georgia	98 (0.5)	92 (1.4)	82 (5.3)	*** (***)	*** (***)	75 (1.7)	37 (2.1)	32 (7.8)	*** (***)	*** (***)
Hawaii	95 (1.5)	*** (***)	83 (2.5)	95 (0.7) >	*** (***)	68 (2.5)	*** (***)	40 (3.6)	58 (1.7) >	*** (***)
Idaho	99 (0.2)	*** (***)	96 (1.9)	*** (***)	98 (1.9)	82 (1.1)	*** (***)	55 (4.0)	*** (***)	60 (6.6)
Indiana	99 (0.4)	92 (2.5)	89 (3.8)	*** (***)	*** (***)	77 (1.4)	41 (3.8)	52 (7.0)	*** (***)	*** (***)
Iowa	100 (0.2)	*** (***)	99 (1.3)	*** (***)	*** (***)	88 (1.1) >	*** (***)	62 (6.2)	*** (***)	*** (***)
Kentucky	97 (0.5)	92 (3.2)	81 (5.6)	*** (***)	*** (***)	68 (1.1)	36 (4.4)	31 (6.5)	*** (***)	*** (***)
Louisiana	98 (0.5)	86 (1.9)	79 (4.1)	*** (***)	*** (***)	67 (2.1)	28 (2.7)	27 (3.8)	*** (***)	*** (***)
Maine	99 (0.4)	*** (***)	*** (***)	*** (***)	98 (1.5)	84 (1.1)	*** (***)	*** (***)	*** (***)	65 (8.2)
Maryland	98 (0.4)	89 (2.0)	86 (3.5)	97 (2.9)	*** (***)	80 (1.7)	36 (2.2)	38 (4.1)	82 (4.5)	*** (***)
Massachusetts	99 (0.2)	89 (3.3)	89 (3.8)	*** (***)	*** (***)	80 (1.6)	40 (6.7)	37 (5.2)	*** (***)	*** (***)
Michigan	99 (0.3)	86 (2.0)	89 (3.3)	*** (***)	*** (***)	81 (1.5) >	28 (3.1)	52 (6.5)	*** (***)	*** (***)
Minnesota	100 (0.2)	*** (***)	95 (2.7)	*** (***)	*** (***)	85 (1.0)	*** (***)	57 (6.1)	*** (***)	*** (***)
Mississippi	97 (0.7)	84 (1.5)	80 (3.5)	*** (***)	*** (***)	66 (1.9)	25 (1.6)	15 (3.6)	*** (***)	*** (***)
Missouri	99 (0.2)	93 (2.4)	95 (3.5)	*** (***)	*** (***)	80 (1.3)	37 (3.9)	45 (6.9)	*** (***)	*** (***)
Nebraska	99 (0.2)	88 (4.9)	95 (2.3)	*** (***)	*** (***)	86 (1.0)	34 (7.4)	54 (5.9)	*** (***)	*** (***)
New Hampshire	99 (0.3)	*** (***)	96 (2.7)	*** (***)	*** (***)	84 (0.9) >	*** (***)	60 (7.0)	*** (***)	*** (***)
New Jersey	100 (0.3)	92 (1.8)	91 (3.2)	100 (0.0)	*** (***)	86 (1.4)	40 (3.9)	48 (4.7)	91 (3.2)	*** (***)
New Mexico	98 (0.6)	*** (***)	95 (1.0)	*** (***)	98 (1.7)	78 (1.4)	*** (***)	47 (2.0)	*** (***)	50 (6.1)
New York	99 (0.3)	81 (3.3)	85 (3.5)	97 (2.4)	*** (***)	83 (1.7)	31 (5.5)	43 (5.6)	80 (6.6)	*** (***)
North Carolina	98 (0.5)	88 (1.5)	88 (4.7)	*** (***)	*** (***)	70 (1.3)	35 (2.4)	35 (6.3)	*** (***)	*** (***)
North Dakota	100 (0.1)	*** (***)	*** (***)	*** (***)	99 (2.1)!	88 (1.2)	*** (***)	*** (***)	*** (***)	71 (8.9)! >
Ohio	99 (0.3)	87 (2.7)	90 (4.8)	*** (***)	*** (***)	78 (1.7)	30 (2.9)	47 (6.9)	*** (***)	*** (***)
Oklahoma	99 (0.4)	90 (2.5)	92 (2.9)	*** (***)	97 (1.5)	78 (1.6)	35 (5.4)	52 (5.8)	*** (***)	63 (4.5)
Pennsylvania	99 (0.3)	88 (3.1)	91 (4.1)!	*** (***)	*** (***)	79 (1.4)	33 (5.7)	44 (5.1)!	*** (***)	*** (***)
Rhode Island	99 (0.2)	89 (3.6)	84 (2.8)	94 (3.2)	*** (***)	75 (1.4)»	37 (5.9)	28 (4.0)	69 (5.5)	*** (***)
South Carolina	99 (0.4)	93 (1.0)	89 (3.6)	*** (***)	*** (***)	76 (1.2)	37 (1.8)	28 (4.7)	*** (***)	*** (***)
Tennessee	98 (0.4)	88 (2.0)	78 (7.9)	*** (***)	*** (***)	69 (1.5)	29 (3.4)	30 (6.6)	*** (***)	*** (***)
Texas	99 (0.4)	92 (1.7)	93 (0.9)	100 (1.1)	*** (***)	81 (1.6)	39 (3.6)	48 (2.2)	90 (3.8)	*** (***)
Utah	99 (0.3)	*** (***)	95 (1.8)	*** (***)	*** (***)	80 (1.1)	*** (***)	56 (4.7)	*** (***)	*** (***)
Virginia	99 (0.3)	93 (0.9)	92 (3.3)	99 (0.7)	*** (***)	77 (1.4)	42 (2.9)	57 (4.6)	81 (3.9)	*** (***)
West Virginia	97 (0.5)	94 (2.2)	84 (4.9)	*** (***)	*** (***)	62 (1.5)	39 (7.1)	27 (6.6)	*** (***)	*** (***)
Wisconsin	99 (0.2)	91 (3.0)	90 (3.0)	*** (***)	96 (2.1)!	85 (1.3)	45 (8.9)	50 (6.7)	*** (***)	70(10.2)!
Wyoming	99 (0.2)	*** (***)	97 (1.4)	*** (***)	98 (1.9)!	83 (1.0)	*** (***)	61 (3.5)	*** (***)	50 (5.4)!
TERRITORIES										
Guam	95 (3.4)	*** (***)	65 (3.6)	83 (1.3)	*** (***)	70 (6.2)	*** (***)	22 (2.9)	35 (1.6)	*** (***)
Virgin Islands	*** (***)	78 (1.9)	68 (3.6)	*** (***)	*** (***)	*** (***)	20 (1.6)	10 (1.8)	*** (***)	*** (***)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

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TABLE A.5 | Anchor Levels by Race/Ethnicity (continued)

PUBLIC SCHOOLS	Grade 8 - 1992									
	Percentage of Students At or Above Level 300					Percentage of Students At or Above Level 350				
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	White	Black	Hispanic	Asian / Pacific Islander	American Indian
NATION	24 (1.2)	2 (0.5)	5 (0.8)	38 (8.0)	6 (3.4)	1 (0.2)	0 (0.2)	0 (0.1)	4 (2.2)	0 (0.0)
Northeast	29 (3.0)	3 (2.0)	6 (2.3)!	*** (***)	*** (***)	1 (0.6)	0 (0.7)	0 (0.0)!	*** (***)	*** (***)
Southeast	17 (1.4)	1 (0.6)	6 (2.9)!	*** (***)	*** (***)	0 (0.2)	0 (0.0)	0 (0.0)!	*** (***)	*** (***)
Central	26 (3.0)	2 (1.2)	3 (1.4)	*** (***)	*** (***)	1 (0.4)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
West	25 (2.2)	1 (0.9)	6 (0.9)	38(14.0)	*** (***)	1 (0.4)	0 (0.0)	0 (0.1)	6 (3.4)	*** (***)
STATES										
Alabama	14 (1.4)	1 (0.5)	1 (1.4)	*** (***)	*** (***)	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Arizona	21 (1.6)	4 (2.4)	4 (0.9)	*** (***)	5 (2.5)	0 (0.2)	0 (0.0)	0 (0.2)	*** (***)	0 (0.0)
Arkansas	12 (1.0)	2 (0.8)	3 (1.8)	*** (***)	*** (***)	0 (0.2)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
California	23 (2.2)	2 (1.1)	4 (1.1)	27 (3.2)	*** (***)	1 (0.5)	0 (0.0)	0 (0.0)	1 (0.9)	*** (***)
Colorado	25 (1.3)	5 (2.8)	7 (1.0)	*** (***)	*** (***)	1 (0.2)	0 (0.0)	0 (0.2)	*** (***)	*** (***)
Connecticut	31 (1.2) >	3 (1.2)	3 (1.2)	44 (8.8)	*** (***)	1 (0.2)	0 (0.0)	0 (0.0)	3 (3.4)	*** (***)
Delaware	20 (1.1)	2 (0.8)	3 (2.9)	*** (***)	*** (***)	1 (0.3)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Dist. Columbia	*** (***)	2 (0.6)	5 (2.9)	*** (***)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Florida	21 (1.6) >	3 (1.0)	4 (1.2)	*** (***)	*** (***)	0 (0.3)	0 (0.1)	0 (0.0)	*** (***)	*** (***)
Georgia	17 (1.4)	3 (0.6)	4 (2.9)	*** (***)	*** (***)	0 (0.3)	0 (0.1)	0 (0.0)	*** (***)	*** (***)
Hawaii	16 (2.3)	*** (***)	3 (1.0)	14 (0.8)	*** (***)	1 (0.4)	*** (***)	0 (0.0)	1 (0.3)	*** (***)
Idaho	22 (1.2)	*** (***)	6 (1.8)	*** (***)	8 (3.4)	0 (0.2)	*** (***)	0 (0.0)	*** (***)	0 (0.0)
Indiana	21 (1.3)	3 (1.1)	7 (3.0)	*** (***)	*** (***)	1 (0.3)	0 (0.0)	0 (0.4)	*** (***)	*** (***)
Iowa	31 (1.3)	*** (***)	11 (4.0)	*** (***)	*** (***)	1 (0.3)	*** (***)	0 (0.0)	*** (***)	*** (***)
Kentucky	14 (1.1)	4 (1.7)	4 (2.5)	*** (***)	*** (***)	0 (0.2)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Louisiana	11 (1.6)	1 (0.4)	1 (0.8)	*** (***)	*** (***)	0 (0.2)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Maine	25 (1.5)	*** (***)	*** (***)	*** (***)	7 (4.3)	1 (0.2)	*** (***)	*** (***)	*** (***)	0 (2.5)
Maryland	28 (1.7)	2 (0.8)	4 (1.8)	39 (5.7)	*** (***)	1 (0.6)	0 (0.0)	0 (0.0)	5 (2.1)	*** (***)
Massachusetts	25 (1.4)	6 (2.3)	4 (1.8)	*** (***)	*** (***)	1 (0.2)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Michigan	22 (1.7)	1 (0.5)	7 (3.0)	*** (***)	*** (***)	0 (0.2)	0 (0.3)	0 (0.5)	*** (***)	*** (***)
Minnesota	31 (1.2)»	*** (***)	5 (2.2)	*** (***)	*** (***)	1 (0.3)	*** (***)	0 (0.0)	*** (***)	*** (***)
Mississippi	11 (1.3)	1 (0.5)	1 (0.6)	*** (***)	*** (***)	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Missouri	21 (1.4)	2 (1.0)	9 (4.3)	*** (***)	*** (***)	0 (0.2)	0 (0.3)	1 (0.9)	*** (***)	*** (***)
Nebraska	27 (1.7)	2 (1.3)	9 (2.6)	*** (***)	*** (***)	1 (0.2)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
New Hampshire	24 (1.3)	*** (***)	10 (4.4)	*** (***)	*** (***)	1 (0.2)	*** (***)	0 (0.0)	*** (***)	*** (***)
New Jersey	29 (2.0)	3 (1.1)	5 (1.4)	49 (5.6)	*** (***)	1 (0.3)	0 (0.0)	0 (0.2)	4 (2.4)	*** (***)
New Mexico	18 (1.6)	*** (***)	4 (0.7)	*** (***)	1 (1.6)	0 (0.2)	*** (***)	0 (0.0)	*** (***)	0 (0.0)
New York	26 (1.5)	3 (1.4)	6 (1.7)	33 (7.8)	*** (***)	1 (0.3)	0 (0.2)	0 (0.2)	4 (3.1)	*** (***)
North Carolina	15 (1.1)	3 (0.6)	5 (3.9)	*** (***)	*** (***)	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
North Dakota	29 (1.6)	*** (***)	*** (***)	*** (***)	5 (3.0)!	0 (0.2)	*** (***)	*** (***)	*** (***)	0 (0.0)!
Ohio	20 (1.6)	2 (0.8)	5 (2.4)	*** (***)	*** (***)	0 (0.3)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Oklahoma	18 (1.4)	1 (1.1)	9 (2.8)	*** (***)	12 (3.0)	0 (0.2)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)
Pennsylvania	23 (1.4)	4 (2.5)	5 (3.0)!	*** (***)	*** (***)	0 (0.2)	0 (0.0)	0 (0.0)!	*** (***)	*** (***)
Rhode Island	17 (1.1)	2 (1.7)	2 (0.9)	14 (3.3)	*** (***)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)
South Carolina	22 (1.6)	2 (0.6)	2 (1.2)	*** (***)	*** (***)	1 (0.2)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Tennessee	14 (1.2)	2 (0.7)	2 (1.8)	*** (***)	*** (***)	0 (0.2)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Texas	26 (1.9)	4 (1.3)	6 (1.1)	56 (6.9)	*** (***)	1 (0.4)	0 (0.0)	0 (0.2)	9 (4.4)	*** (***)
Utah	22 (1.2)	*** (***)	5 (2.5)	*** (***)	*** (***)	0 (0.2)	*** (***)	0 (0.0)	*** (***)	*** (***)
Virginia	22 (1.2)	4 (1.0)	11 (3.9)	31 (5.8)	*** (***)	1 (0.3)	0 (0.2)	0 (0.0)	1 (1.2)	*** (***)
West Virginia	9 (0.9)	3 (1.4)	2 (1.5)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Wisconsin	28 (1.3)	7 (5.1)	5 (2.4)	*** (***)	9 (3.4)!	1 (0.3)	0 (0.2)	0 (0.0)	*** (***)	0 (0.0)!
Wyoming	21 (1.0)	*** (***)	8 (2.3)	*** (***)	1 (0.9)!	0 (0.2)	*** (***)	0 (0.0)	*** (***)	0 (0.0)!
TERRITORIES										
Guam	18 (6.7)	*** (***)	2 (1.1)	5 (0.6)	*** (***)	0 (0.0)	*** (***)	0 (0.0)	0 (0.1)	*** (***)
Virgin Islands	*** (***)	1 (0.3)	0 (0.0)	*** (***)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	*** (***)	*** (***)

TABLE A.5 | Anchor Levels by Race/Ethnicity (continued)

PUBLIC SCHOOLS	Grade 8 - 1990									
	Percentage of Students At or Above Level 200					Percentage of Students At or Above Level 250				
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	White	Black	Hispanic	Asian / Pacific Islander	American Indian
NATION	98 (0.5)	86 (2.8)	89 (2.0)	97 (2.7)!	93 (3.4)!	73 (1.6)	34 (3.2)	43 (4.0)	79 (6.1)!	46(12.2)!
Northeast	99 (0.6)	88 (5.7)!	*** (***)	*** (***)	*** (***)	77 (3.0)	45 (9.2)!	*** (***)	*** (***)	*** (***)
Southeast	97 (1.4)	85 (4.8)	*** (***)	*** (***)	*** (***)	67 (3.8)	32 (4.2)	*** (***)	*** (***)	*** (***)
Central	99 (0.8)	85 (7.1)!	*** (***)	*** (***)	*** (***)	76 (2.8)	25 (7.2)!	*** (***)	*** (***)	*** (***)
West	96 (1.3)	90 (4.6)!	90 (2.4)	*** (***)	*** (***)	72 (2.8)	41 (8.9)!	43 (4.9)	*** (***)	*** (***)
STATES										
Alabama	98 (0.6)	87 (2.1)	80 (5.2)	*** (***)	*** (***)	66 (1.5)	28 (2.6)	22 (4.6)	*** (***)	*** (***)
Arizona	99 (0.3)	92 (3.8)	90 (1.8)	*** (***)	91 (3.8)!	76 (1.4)	45 (4.8)	40 (2.8)	*** (***)	30 (4.0)!
Arkansas	98 (0.4)	88 (1.9)	82 (4.7)	*** (***)	*** (***)	70 (1.3)	25 (1.8)	26 (5.0)	*** (***)	*** (***)
California	99 (0.4)	85 (4.6)	85 (1.3)	98 (1.1)	*** (***)	74 (1.6)	29 (3.9)	36 (2.5)	71 (4.3)	*** (***)
Colorado	99 (0.3)	90 (2.6)!	92 (1.3)	*** (***)	*** (***)	79 (1.0)	35 (4.8)!	47 (2.9)	*** (***)	*** (***)
Connecticut	99 (0.3)	90 (2.1)	86 (2.8)	*** (***)	*** (***)	80 (1.2)	39 (3.8)	37 (3.5)	*** (***)	*** (***)
Delaware	98 (0.5)	90 (2.2)	87 (4.4)	*** (***)	*** (***)	70 (1.6)	41 (2.3)	42 (6.6)	*** (***)	*** (***)
Dist. Columbia	*** (***)	85 (1.1)	68 (4.0)	*** (***)	*** (***)	*** (***)	25 (1.0)	17 (2.3)	*** (***)	*** (***)
Florida	98 (0.6)	84 (2.5)	89 (1.9)	97 (2.6)	*** (***)	68 (1.9)	27 (2.5)	44 (3.1)	71 (6.0)	*** (***)
Georgia	98 (0.4)	90 (1.4)	82 (3.6)	*** (***)	*** (***)	74 (1.6)	37 (1.7)	32 (4.6)	*** (***)	*** (***)
Hawaii	95 (1.4)	*** (***)	81 (3.4)	91 (1.0)	*** (***)	63 (2.5)	*** (***)	29 (4.1)	51 (1.2)	*** (***)
Idaho	99 (0.3)	*** (***)	94 (2.2)	*** (***)	95 (3.5)	80 (1.3)	*** (***)	50 (5.4)	*** (***)	52 (9.7)
Indiana	99 (0.3)	94 (2.5)	90 (3.3)	*** (***)	*** (***)	75 (1.3)	40 (4.9)	40 (5.4)	*** (***)	*** (***)
Iowa	99 (0.2)	*** (***)	97 (2.2)	*** (***)	*** (***)	83 (1.1)	*** (***)	58 (5.6)	*** (***)	*** (***)
Kentucky	97 (0.6)	92 (2.1)	85 (7.4)	*** (***)	*** (***)	62 (1.8)	36 (3.7)	22 (4.5)	*** (***)	*** (***)
Louisiana	98 (0.4)	85 (1.6)	75 (4.7)	*** (***)	*** (***)	62 (2.2)	24 (2.0)	23 (4.5)	*** (***)	*** (***)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	98 (0.5)	89 (1.7)	83 (3.5)	99 (1.8)	*** (***)	76 (1.7)	35 (3.0)	35 (3.2)	87 (3.8)	*** (***)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	99 (0.3)	88 (2.0)	90 (3.3)	*** (***)	*** (***)	75 (1.1)	26 (2.9)	42 (5.4)	*** (***)	*** (***)
Minnesota	99 (0.3)	86 (5.2)!	88 (5.0)	97 (3.6)	*** (***)	82 (0.9)	36 (9.0)!	38 (5.7)	71 (6.7)	*** (***)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	99 (0.3)	85 (4.9)	96 (3.2)	*** (***)	*** (***)	83 (1.1)	33 (7.2)	57 (7.6)	*** (***)	*** (***)
New Hampshire	99 (0.4)	*** (***)	92 (4.5)	*** (***)	*** (***)	78 (1.4)	*** (***)	59 (9.3)	*** (***)	*** (***)
New Jersey	100 (0.2)	92 (2.3)	92 (2.0)	100 (0.0)	*** (***)	83 (1.3)	37 (2.7)	40 (3.5)	89 (3.8)	*** (***)
New Mexico	99 (0.5)	*** (***)	94 (1.1)	*** (***)	91 (2.2)	77 (1.6)	*** (***)	46 (2.0)	*** (***)	34 (3.0)
New York	99 (0.4)	87 (2.5)	84 (2.4)	96 (3.6)!	*** (***)	78 (1.3)	33 (4.0)	36 (4.4)	77 (5.8)!	*** (***)
North Carolina	97 (0.6)	86 (1.5)	71 (6.0)	*** (***)	83 (5.1)!	65 (1.8)	28 (1.8)	16 (4.1)	*** (***)	32 (7.9)!
North Dakota	100 (0.2)	*** (***)	92 (5.3)	*** (***)	92 (2.6)!	90 (1.0)	*** (***)	48 (8.7)	*** (***)	39 (4.4)!
Ohio	99 (0.3)	86 (3.6)	89 (4.6)	*** (***)	*** (***)	73 (1.3)	28 (3.1)	35 (6.6)	*** (***)	*** (***)
Oklahoma	99 (0.4)	90 (3.2)	92 (4.4)	*** (***)	96 (1.9)	73 (1.5)	31 (3.1)	45 (5.4)	*** (***)	60 (4.0)
Pennsylvania	99 (0.4)	91 (2.3)	77 (5.3)	*** (***)	*** (***)	77 (1.3)	35 (4.6)	27 (5.6)	*** (***)	*** (***)
Rhode Island	97 (0.6)	81 (3.7)	82 (3.2)	*** (***)	*** (***)	68 (0.9)	24 (4.4)	27 (4.0)	*** (***)	*** (***)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	99 (0.5)	90 (2.0)	92 (1.8)	*** (***)	*** (***)	77 (1.6)	30 (3.2)	44 (1.9)	*** (***)	*** (***)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	99 (0.4)	92 (1.2)	88 (3.5)	100 (0.0)	*** (***)	73 (1.6)	39 (2.4)	39 (5.4)	93 (3.1)	*** (***)
West Virginia	97 (0.6)	89 (4.4)	79 (5.8)	*** (***)	*** (***)	59 (1.4)	29 (6.8)	29 (5.1)	*** (***)	*** (***)
Wisconsin	99 (0.2)	91 (3.4)	94 (3.7)	*** (***)	*** (***)	84 (1.4)	31 (6.4)	51 (5.4)	*** (***)	*** (***)
Wyoming	99 (0.3)	*** (***)	96 (1.5)	*** (***)	97 (1.9)	81 (1.0)	*** (***)	60 (3.6)	*** (***)	64 (5.4)
TERRITORIES										
Guam	92 (3.0)	*** (***)	60 (3.0)	83 (1.1)	*** (***)	63 (6.5)	*** (***)	12 (2.0)	34 (1.3)	*** (***)
Virgin Islands	*** (***)	78 (1.3)	61 (3.1)	*** (***)	*** (***)	*** (***)	15 (1.4)	8 (1.6)	*** (***)	*** (***)

(xxx) Did not participate in the 1990 Trial State Assessment.

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TABLE A.5 | Anchor Levels by Race/Ethnicity (continued)

PUBLIC SCHOOLS	Grade 8 - 1990									
	Percentage of Students At or Above Level 300					Percentage of Students At or Above Level 350				
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	White	Black	Hispanic	Asian / Pacific Islander	American Indian
NATION	18 (1.4)	4 (1.1)	4 (1.4)	31 (5.8)!	5 (4.4)!	1 (0.4)	0 (0.0)	0 (0.1)	1 (0.8)!	0 (0.0)!
Northeast	23 (3.1)	7 (4.9)!	*** (***)	*** (***)	*** (***)	1 (0.6)	0 (0.0)!	*** (***)	*** (***)	*** (***)
Southeast	15 (3.3)	3 (1.5)	*** (***)	*** (***)	*** (***)	0 (0.4)	0 (0.0)	*** (***)	*** (***)	*** (***)
Central	17 (1.6)	1 (1.3)!	*** (***)	*** (***)	*** (***)	0 (0.5)	0 (0.0)!	*** (***)	*** (***)	*** (***)
West	18 (3.1)	6 (1.9)!	5 (1.8)	*** (***)	*** (***)	1 (0.6)	0 (0.0)!	0 (0.2)	*** (***)	*** (***)
STATES										
Alabama	12 (0.9)	2 (0.5)	4 (1.7)	*** (***)	*** (***)	0 (0.2)	0 (0.1)	1 (1.1)	*** (***)	*** (***)
Arizona	17 (1.3)	3 (1.7)	3 (0.9)	*** (***)	0 (0.6)!	0 (0.2)	0 (0.0)	0 (0.2)	*** (***)	0 (0.0)!
Arkansas	11 (0.9)	1 (0.4)	2 (1.5)	*** (***)	*** (***)	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
California	19 (1.9)	2 (1.4)	3 (0.7)	20 (3.3)	*** (***)	1 (0.4)	0 (0.0)	0 (0.0)	1 (0.9)	*** (***)
Colorado	20 (1.2)	1 (1.2)!	4 (0.9)	*** (***)	*** (***)	0 (0.2)	0 (0.0)!	0 (0.2)	*** (***)	*** (***)
Connecticut	25 (1.2)	4 (1.5)	3 (1.3)	*** (***)	*** (***)	1 (0.2)	0 (0.2)	0 (0.2)	*** (***)	*** (***)
Delaware	17 (1.0)	4 (0.9)	6 (3.4)	*** (***)	*** (***)	1 (0.4)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Dist. Columbia	*** (***)	1 (0.3)	2 (1.1)	*** (***)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Florida	15 (1.4)	2 (0.7)	7 (1.4)	28 (7.1)	*** (***)	0 (0.1)	0 (0.0)	0 (0.3)	0 (1.8)	*** (***)
Georgia	19 (1.6)	3 (0.7)	3 (1.6)	*** (***)	*** (***)	1 (0.6)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Hawaii	16 (2.7)	*** (***)	3 (1.3)	12 (0.9)	*** (***)	1 (0.5)	*** (***)	0 (0.4)	1 (0.2)	*** (***)
Idaho	19 (1.2)	*** (***)	4 (1.7)	*** (***)	5 (4.5)	0 (0.2)	*** (***)	0 (0.0)	*** (***)	0 (0.3)
Indiana	18 (1.1)	2 (1.0)	7 (2.8)	*** (***)	*** (***)	1 (0.2)	0 (0.2)	0 (1.1)	*** (***)	*** (***)
Iowa	25 (1.5)	*** (***)	9 (3.0)	*** (***)	*** (***)	1 (0.2)	*** (***)	0 (0.9)	*** (***)	*** (***)
Kentucky	11 (0.9)	2 (0.9)	1 (0.8)	*** (***)	*** (***)	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Louisiana	8 (1.0)	1 (0.3)	2 (1.5)	*** (***)	*** (***)	0 (0.2)	0 (0.1)	0 (0.0)	*** (***)	*** (***)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	21 (1.5)	3 (0.9)	6 (1.8)	45 (6.6)	*** (***)	1 (0.3)	0 (0.1)	0 (0.4)	2 (1.5)	*** (***)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	18 (1.2)	1 (0.6)	4 (1.9)	*** (***)	*** (***)	1 (0.3)	0 (0.0)	0 (0.8)	*** (***)	*** (***)
Minnesota	23 (1.3)	7 (3.1)!	5 (2.2)	19 (5.4)	*** (***)	1 (0.3)	0 (0.0)!	0 (0.0)	5 (4.4)	*** (***)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	26 (1.3)	2 (2.4)	3 (2.6)	*** (***)	*** (***)	1 (0.4)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
New Hampshire	20 (1.2)	*** (***)	8 (4.1)	*** (***)	*** (***)	1 (0.3)	*** (***)	0 (0.0)	*** (***)	*** (***)
New Jersey	25 (1.5)	4 (1.6)	5 (1.4)	51 (6.2)	*** (***)	1 (0.3)	0 (0.0)	0 (0.9)	3 (1.6)	*** (***)
New Mexico	19 (2.1)	*** (***)	4 (0.7)	*** (***)	2 (1.0)	0 (0.3)	*** (***)	0 (0.2)	*** (***)	0 (0.0)
New York	20 (1.3)	4 (1.0)	4 (1.2)	31 (5.4)!	*** (***)	1 (0.4)	0 (0.0)	0 (0.3)	3 (2.6)!	*** (***)
North Carolina	12 (1.0)	2 (0.7)	1 (1.0)	*** (***)	2 (2.1)!	0 (0.1)	0 (0.1)	0 (0.0)	*** (***)	0 (0.0)!
North Dakota	28 (1.7)	*** (***)	7 (4.5)	*** (***)	2 (2.2)!	1 (0.5)	*** (***)	0 (0.0)	*** (***)	0 (0.0)!
Ohio	16 (1.0)	2 (1.1)	3 (2.3)	*** (***)	*** (***)	0 (0.2)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Oklahoma	15 (1.3)	0 (0.6)	4 (1.9)	*** (***)	5 (1.9)	0 (0.2)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)
Pennsylvania	19 (1.3)	3 (1.3)	3 (2.0)	*** (***)	*** (***)	0 (0.2)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Rhode Island	16 (0.9)	1 (1.0)	1 (0.8)	*** (***)	*** (***)	0 (0.2)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	20 (1.8)	2 (1.1)	4 (0.9)	*** (***)	*** (***)	1 (0.4)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	20 (1.9)	4 (1.0)	8 (3.7)	40 (5.7)	*** (***)	1 (0.5)	0 (0.2)	0 (0.0)	7 (3.1)	*** (***)
West Virginia	9 (0.8)	2 (3.3)	3 (2.4)	*** (***)	*** (***)	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Wisconsin	25 (1.5)	3 (1.7)	6 (2.4)	*** (***)	*** (***)	1 (0.2)	0 (0.0)	0 (0.0)	*** (***)	*** (***)
Wyoming	19 (1.1)	*** (***)	6 (2.6)	*** (***)	5 (2.4)	0 (0.1)	*** (***)	0 (0.0)	*** (***)	0 (0.0)
TERRITORIES										
Guam	10 (2.4)	*** (***)	1 (0.5)	4 (0.5)	*** (***)	0 (0.0)	*** (***)	0 (0.0)	0 (0.1)	*** (***)
Virgin Islands	*** (***)	1 (0.4)	0 (0.2)	*** (***)	*** (***)	*** (***)	0 (0.0)	0 (0.0)	*** (***)	*** (***)

(xxx) Did not participate in the 1990 Trial State Assessment.

Anchor-Level Results by Gender

TABLES A.6 and A.7 contain the anchor-level results by gender for the nation and the states. For the nation, both genders showed significant increases in their average proficiency at all three grades assessed. However, males may have gained some advantage compared to females at grade four, since significantly increased percentages performed at or above Levels 200 and 250, while the apparent increases for females were not statistically significant. In contrast, females showed statistically significant improvement at grades 8 (Level 300) and 12 (Level 250), while the apparent increases by males were not statistically significant.

For the states, the anchor-level results indicate relatively comparable achievement between the genders. The trends for eighth graders indicate similar amounts of improvement across the genders. In Hawaii, the males improved at Level 200. At Level 250, males showed gains in Hawaii, North Carolina, and Rhode Island, while increased percentages of females were found in Arizona, Iowa, North Carolina, Rhode Island, and the Virgin Islands. Males in North Carolina and Texas as well as females in Iowa, Minnesota, and New York, showed gains at Level 300.

TABLE A.6 Average Mathematics Proficiency and Anchor Levels by Gender, Grades 4, 8, and 12

	Assessment Years	Percent of Students	Average Proficiency	Percentage of Students At or Above			
				Level 200	Level 250	Level 300	Level 350
Grade 4							
Male	**1992**	50(0.6)	220(0.8)>	73(1.0)>	18(1.0)>	0(0.2)	0(0.0)
	1990	52(1.0)	214(1.2)	68(1.8)	13(1.4)	0(0.2)	0(0.0)
Female	**1992**	50(0.6)	217(1.0)>	72(1.2)	15(1.1)	0(0.2)	0(0.0)
	1990	48(1.0)	212(1.1)	67(1.9)	12(1.2)	0(0.0)	0(0.0)
Grade 8							
Male	**1992**	51(0.6)	267(1.1)>	96(0.6)	68(1.2)	20(1.2)	1(0.2)
	1990	51(1.0)	263(1.6)	95(0.9)	65(1.9)	16(1.4)	1(0.4)
Female	**1992**	49(0.6)	268(1.0)>	97(0.4)	69(1.2)	19(1.1)>	1(0.2)
	1990	49(1.0)	262(1.3)	96(0.8)	65(1.5)	13(1.0)	0(0.1)
Grade 12							
Male	**1992**	49(0.8)	301(1.1)>	100(0.1)	92(0.7)	52(1.5)	8(0.6)
	1990	48(1.0)	297(1.4)	100(0.2)	89(1.2)	47(1.8)	7(1.2)
Female	**1992**	51(0.8)	297(1.0)>	100(0.1)	91(0.7)>	48(1.3)	5(0.7)
	1990	52(1.0)	292(1.3)	99(0.3)	87(1.3)	43(1.9)	3(0.6)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details). When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 percent or less were rounded to 0 percent.

TABLE A.7 | Anchor Levels by Gender

PUBLIC SCHOOLS	Grade 4 - 1992							
	Percentage of Students At or Above Level 200		Percentage of Students At or Above Level 250		Percentage of Students At or Above Level 300		Percentage of Students At or Above Level 350	
	Male	Female	Male	Female	Male	Female	Male	Female
NATION	72 (1.2)	70 (1.4)	18 (1.0)	15 (1.2)	0 (0.2)	0 (0.2)	0 (0.0)	0 (0.0)
Northeast	77 (2.5)	74 (3.6)	25 (3.1)	18 (3.2)	1 (0.5)	0 (0.5)	0 (0.0)	0 (0.0)
Southeast	62 (2.4)	61 (3.5)	10 (1.2)	10 (2.4)	0 (0.4)	0 (0.2)	0 (0.0)	0 (0.0)
Central	80 (3.3)	75 (3.5)	21 (2.4)	16 (2.4)	0 (0.2)	0 (0.1)	0 (0.0)	0 (0.0)
West	70 (2.0)	71 (2.5)	16 (2.3)	15 (2.4)	0 (0.4)	0 (0.3)	0 (0.0)	0 (0.0)
STATES								
Alabama	58 (2.6)	58 (2.3)	9 (1.3)	9 (1.4)	0 (0.1)	0 (0.1)	0 (0.0)	0 (0.0)
Arizona	67 (1.8)	68 (1.8)	13 (1.1)	12 (1.2)	0 (0.1)	0 (0.1)	0 (0.0)	0 (0.0)
Arkansas	63 (1.5)	62 (2.3)	9 (0.8)	8 (1.2)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)
California	60 (2.3)	60 (2.1)	12 (1.5)	11 (1.1)	0 (0.2)	0 (0.1)	0 (0.0)	0 (0.0)
Colorado	75 (1.7)	74 (1.6)	18 (1.3)	16 (1.4)	0 (0.2)	0 (0.1)	0 (0.0)	0 (0.0)
Connecticut	80 (1.6)	79 (1.5)	25 (1.6)	22 (1.7)	1 (0.4)	0 (0.3)	0 (0.0)	0 (0.0)
Delaware	70 (1.7)	68 (1.7)	17 (1.6)	14 (1.7)	0 (0.2)	0 (0.2)	0 (0.0)	0 (0.0)
Dist. Columbia	37 (2.3)	36 (1.7)	5 (0.7)	5 (0.5)	0 (0.2)	0 (0.2)	0 (0.0)	0 (0.0)
Florida	68 (2.3)	65 (2.0)	13 (1.5)	11 (1.4)	0 (0.2)	0 (0.1)	0 (0.0)	0 (0.0)
Georgia	66 (2.1)	68 (2.2)	15 (1.4)	13 (1.2)	0 (0.2)	0 (0.1)	0 (0.0)	0 (0.0)
Hawaii	63 (2.2)	68 (1.6)	15 (1.2)	13 (1.1)	0 (0.1)	0 (0.1)	0 (0.0)	0 (0.0)
Idaho	79 (1.7)	75 (2.0)	16 (1.1)	13 (1.3)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)
Indiana	77 (1.9)	73 (1.8)	15 (1.5)	14 (1.1)	0 (0.2)	0 (0.1)	0 (0.0)	0 (0.0)
Iowa	84 (1.5)	84 (1.5)	25 (1.4)	23 (1.3)	0 (0.2)	0 (0.2)	0 (0.0)	0 (0.0)
Kentucky	66 (1.6)	68 (2.0)	13 (1.4)	10 (1.1)	0 (0.1)	0 (0.1)	0 (0.0)	0 (0.0)
Louisiana	54 (2.3)	54 (2.5)	8 (1.0)	6 (0.9)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)
Maine	86 (1.4)	86 (1.3)	26 (1.7)	25 (1.9)	1 (0.3)	0 (0.2)	0 (0.1)	0 (0.0)
Maryland	69 (1.5)	66 (2.0)	19 (1.5)	16 (1.5)	1 (0.3)	0 (0.1)	0 (0.0)	0 (0.0)
Massachusetts	81 (1.3)	78 (1.7)	24 (1.7)	20 (1.5)	1 (0.3)	0 (0.2)	0 (0.0)	0 (0.0)
Michigan	75 (2.2)	71 (2.2)	20 (2.1)	14 (1.7)	0 (0.2)	0 (0.2)	0 (0.0)	0 (0.0)
Minnesota	81 (1.5)	82 (1.4)	26 (1.3)	23 (1.4)	0 (0.2)	0 (0.3)	0 (0.0)	0 (0.0)
Mississippi	49 (1.8)	52 (2.1)	6 (0.8)	6 (0.7)	0 (0.1)	0 (0.1)	0 (0.0)	0 (0.0)
Missouri	75 (1.5)	77 (2.3)	18 (1.4)	17 (1.7)	0 (0.2)	0 (0.2)	0 (0.0)	0 (0.0)
Nebraska	79 (1.8)	77 (1.8)	22 (1.8)	18 (1.9)	0 (0.2)	0 (0.2)	0 (0.0)	0 (0.0)
New Hampshire	84 (1.5)	85 (1.3)	25 (1.9)	22 (1.9)	1 (0.2)	0 (0.2)	0 (0.0)	0 (0.0)
New Jersey	81 (2.2)	79 (1.7)	24 (1.7)	22 (2.2)	0 (0.3)	0 (0.2)	0 (0.0)	0 (0.0)
New Mexico	65 (2.6)	65 (1.9)	10 (1.1)	11 (2.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)
New York	74 (1.9)	68 (1.8)	19 (1.7)	12 (1.3)	0 (0.3)	0 (0.1)	0 (0.0)	0 (0.0)
North Carolina	63 (1.8)	65 (1.9)	12 (1.1)	11 (1.1)	0 (0.2)	0 (0.1)	0 (0.0)	0 (0.0)
North Dakota	86 (1.2)	84 (1.4)	23 (1.7)	19 (1.6)	0 (0.2)	0 (0.1)	0 (0.0)	0 (0.0)
Ohio	73 (1.7)	70 (1.8)	17 (1.2)	13 (1.6)	0 (0.1)	0 (0.1)	0 (0.0)	0 (0.0)
Oklahoma	77 (1.5)	75 (2.0)	13 (1.6)	12 (1.2)	0 (0.2)	0 (0.1)	0 (0.0)	0 (0.0)
Pennsylvania	78 (1.8)	76 (2.0)	22 (1.8)	19 (1.4)	0 (0.2)	0 (0.2)	0 (0.0)	0 (0.0)
Rhode Island	69 (2.2)	68 (2.1)	13 (1.5)	11 (1.3)	0 (0.2)	0 (0.1)	0 (0.0)	0 (0.0)
South Carolina	63 (2.0)	63 (1.5)	13 (1.5)	11 (1.1)	0 (0.1)	0 (0.1)	0 (0.0)	0 (0.0)
Tennessee	62 (2.0)	63 (2.3)	9 (1.3)	9 (1.1)	0 (0.1)	0 (0.1)	0 (0.0)	0 (0.0)
Texas	71 (1.9)	71 (2.2)	16 (1.7)	12 (1.3)	0 (0.1)	0 (0.1)	0 (0.0)	0 (0.0)
Utah	78 (1.6)	79 (1.6)	18 (1.5)	17 (1.4)	0 (0.3)	0 (0.1)	0 (0.0)	0 (0.0)
Virginia	74 (1.6)	72 (1.9)	19 (2.0)	16 (1.5)	1 (0.4)	0 (0.3)	0 (0.0)	0 (0.0)
West Virginia	69 (2.0)	67 (1.9)	13 (1.5)	10 (0.9)	0 (0.2)	0 (0.1)	0 (0.0)	0 (0.0)
Wisconsin	84 (1.3)	82 (1.7)	25 (1.7)	21 (1.8)	1 (0.3)	0 (0.2)	0 (0.0)	0 (0.0)
Wyoming	83 (1.6)	80 (1.7)	19 (1.5)	15 (1.4)	0 (0.2)	0 (0.1)	0 (0.0)	0 (0.0)
TERRITORY								
Guam	38 (2.4)	43 (1.5)	4 (0.6)	5 (0.9)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)

The standard errors of the estimated percentages appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent.

TABLE A.7 | Anchor Levels by Gender (continued)

PUBLIC SCHOOLS	Grade 8 - 1992							
	Percentage of Students At or Above Level 200		Percentage of Students At or Above Level 250		Percentage of Students At or Above Level 300		Percentage of Students At or Above Level 350	
	Male	Female	Male	Female	Male	Female	Male	Female
NATION	96 (0.6)	97 (0.5)	66 (1.3)	67 (1.3)	19 (1.2)	18 (1.3)	1 (0.3)	1 (0.2)
Northeast	96 (1.1)	96 (1.0)	65 (4.0)	66 (3.9)	21 (2.5)	21 (3.0)	1 (0.6)	1 (0.7)
Southeast	95 (1.8)	96 (1.2)	59 (2.2)	58 (1.9)	12 (1.3)	12 (1.6)	0 (0.2)	0 (0.2)
Central	98 (1.0)	98 (0.6)	74 (2.8)	76 (3.1)	22 (3.1)	22 (3.3)	1 (0.5)	1 (0.3)
West	96 (0.8)	97 (0.8)	66 (2.8)	69 (2.6)	19 (2.2)	20 (2.3)	1 (0.5)	1 (0.4)
STATES								
Alabama	93 (1.4)	92 (1.4)	52 (2.2)	50 (2.4)	11 (1.3)	8 (1.1)	0 (0.1)	0 (0.1)
Arizona	97 (0.6)	97 (0.5)	67 (2.0)	68 (2.1) >	15 (1.4)	13 (1.3)	0 (0.2)	0 (0.2)
Arkansas	94 (0.9)	94 (0.9)	58 (2.0)	57 (1.9)	10 (1.3)	9 (0.9)	0 (0.2)	0 (0.1)
California	92 (1.1)	94 (0.9)	60 (2.2)	62 (2.4)	15 (1.4)	16 (1.7)	1 (0.3)	0 (0.3)
Colorado	98 (0.5)	98 (0.5)	77 (1.6)	73 (1.5)	22 (1.3)	19 (1.4)	0 (0.2)	0 (0.3)
Connecticut	97 (0.6)	97 (0.9)	74 (2.0)	74 (1.4)	26 (1.3)	23 (1.2)	1 (0.3)	0 (0.2)
Delaware	96 (1.0)	95 (0.9)	65 (1.8)	63 (1.6)	15 (1.3)	14 (1.6)	1 (0.3)	1 (0.3)
Dist. Columbia	81 (1.9)	84 (1.4)	31 (1.8)	33 (2.0)	4 (0.9)	5 (1.1)	1 (0.4)	0 (0.0)
Florida	95 (1.0)	94 (1.1)	61 (1.9)	61 (2.3)	14 (1.5)	14 (1.1)	0 (0.2)	0 (0.2)
Georgia	96 (0.8)	95 (1.0)	61 (1.8)	59 (1.5)	13 (1.4)	10 (1.1)	0 (0.3)	0 (0.3)
Hawaii	93 (0.9) >	94 (1.0)	54 (1.6) >	60 (1.8)	11 (0.9)	15 (1.0)	0 (0.2)	1 (0.3)
Idaho	99 (0.4)	99 (0.3)	81 (1.4)	79 (1.4)	23 (1.8)	18 (1.2)	0 (0.3)	0 (0.2)
Indiana	98 (0.6)	98 (0.6)	74 (1.6)	70 (1.8)	20 (1.7)	17 (1.5)	1 (0.4)	0 (0.3)
Iowa	100 (0.2)	99 (0.3)	86 (1.3)	86 (1.4) >	31 (1.5)	28 (1.8) >	1 (0.4)	1 (0.3)
Kentucky	96 (0.7)	96 (0.8)	65 (1.7)	63 (1.7)	14 (1.6)	12 (1.2)	1 (0.3)	0 (0.2)
Louisiana	94 (1.0)	91 (1.2)	53 (2.5)	47 (2.3)	7 (1.1)	7 (1.2)	0 (0.1)	0 (0.1)
Maine	99 (0.6)	99 (0.3)	82 (1.6)	84 (1.4)	25 (1.7)	23 (1.9)	1 (0.3)	1 (0.4)
Maryland	95 (0.7)	95 (1.1)	65 (1.9)	63 (1.9)	20 (1.6)	18 (1.5)	1 (0.6)	1 (0.3)
Massachusetts	98 (0.6)	98 (0.6)	73 (1.8)	74 (1.7)	24 (1.8)	20 (1.6)	1 (0.4)	0 (0.2)
Michigan	97 (0.7)	96 (0.8)	71 (1.6)	68 (1.9)	20 (1.9)	16 (1.5)	0 (0.3)	0 (0.2)
Minnesota	99 (0.3)	99 (0.3)	83 (1.4)	84 (1.4)	30 (1.8)	29 (1.6)»	1 (0.4)	1 (0.5)
Mississippi	90 (1.2)	90 (1.0)	47 (1.8)	43 (1.9)	7 (1.0)	5 (0.9)	0 (0.0)	0 (0.1)
Missouri	98 (0.6)	98 (0.5)	74 (1.7)	73 (1.9)	20 (1.8)	17 (1.3)	1 (0.2)	0 (0.3)
Nebraska	99 (0.4)	98 (0.5)	81 (1.5)	81 (1.4)	26 (1.9)	23 (1.9)	1 (0.4)	0 (0.4)
New Hampshire	99 (0.4)	99 (0.4)	83 (1.4)	82 (1.3)	24 (1.7)	23 (1.5)	1 (0.3)	1 (0.3)
New Jersey	98 (0.7)	96 (0.7)	76 (1.9)	70 (2.0)	25 (1.8)	20 (1.7)	1 (0.5)	0 (0.2)
New Mexico	96 (0.9)	97 (0.5)	63 (2.2)	59 (1.5)	12 (1.2)	8 (0.8)	0 (0.2)	0 (0.1)
New York	94 (1.4)	94 (1.4)	69 (2.5)	66 (2.7)	20 (1.6)	19 (1.3) >	1 (0.3)	1 (0.3)
North Carolina	95 (0.7)	94 (1.0)	60 (1.8) >	59 (1.6) >	13 (1.2) >	10 (1.1)	0 (0.2)	0 (0.1)
North Dakota	100 (0.3)	100 (0.1)	88 (1.2)	86 (1.6)	29 (2.2)	26 (1.6)	1 (0.2)	0 (0.3)
Ohio	97 (0.5)	97 (0.8)	72 (2.2)	69 (1.8)	18 (1.8)	16 (1.9)	1 (0.3)	0 (0.2)
Oklahoma	97 (0.8)	98 (0.5)	73 (1.9)	71 (2.1)	17 (1.4)	14 (1.8)	0 (0.3)	0 (0.1)
Pennsylvania	98 (0.7)	97 (0.7)	75 (1.8)	71 (2.1)	23 (1.6)	17 (1.8)	0 (0.3)	0 (0.2)
Rhode Island	97 (0.7)	96 (0.6)	68 (1.6) >	68 (1.4)»	16 (1.4)	14 (1.1)	0 (0.3)	0 (0.3)
South Carolina	96 (0.8)	97 (0.7)	61 (1.8)	59 (1.4)	15 (1.4)	13 (1.3)	0 (0.2)	1 (0.2)
Tennessee	95 (0.9)	96 (0.9)	62 (2.5)	57 (2.0)	13 (1.3)	9 (1.1)	0 (0.2)	0 (0.1)
Texas	96 (0.6)	95 (0.7)	66 (1.7)	62 (2.0)	19 (1.3) >	15 (1.6)	1 (0.4)	1 (0.4)
Utah	99 (0.4)	98 (0.3)	79 (1.5)	77 (1.5)	22 (1.3)	20 (1.3)	1 (0.3)	0 (0.1)
Virginia	96 (0.5)	98 (0.4)	68 (1.9)	68 (1.7)	19 (1.6)	17 (1.1)	1 (0.3)	1 (0.3)
West Virginia	97 (0.7)	97 (0.8)	61 (1.8)	59 (2.0)	10 (1.3)	8 (0.9)	0 (0.0)	0 (0.0)
Wisconsin	98 (0.6)	99 (0.3)	81 (2.1)	80 (1.9)	26 (1.7)	25 (1.6)	1 (0.3)	1 (0.4)
Wyoming	99 (0.4)	99 (0.3)	79 (1.6)	80 (1.6)	20 (1.4)	19 (1.6)	0 (0.2)	0 (0.2)
TERRITORIES								
Guam	77 (1.6)	84 (1.8)	33 (1.8)	36 (1.8)	6 (1.1)	5 (1.0)	0 (0.1)	0 (0.2)
Virgin Islands	76 (2.8)	77 (1.7)	17 (2.0)	18 (1.7) >	1 (0.4)	0 (0.2)	0 (0.0)	0 (0.0)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

TABLE A.7 | Anchor Levels by Gender (continued)

PUBLIC SCHOOLS	Grade 8 - 1990							
	Percentage of Students At or Above Level 200		Percentage of Students At or Above Level 250		Percentage of Students At or Above Level 300		Percentage of Students At or Above Level 350	
	Male	Female	Male	Female	Male	Female	Male	Female
NATION	95 (0.9)	95 (0.8)	64 (2.0)	63 (1.6)	16 (1.4)	13 (1.1)	1 (0.4)	0 (0.1)
Northeast	97 (1.1)	97 (1.4)	71 (5.3)	72 (3.6)	23 (4.5)	18 (3.4)	1 (0.7)	0 (0.3)
Southeast	92 (2.5)	94 (1.9)	53 (3.7)	56 (3.3)	12 (2.2)	10 (2.7)	0 (0.6)	0 (0.3)
Central	96 (1.4)	97 (1.5)	68 (3.6)	68 (3.0)	16 (3.0)	12 (2.1)	1 (0.8)	0 (0.3)
West	95 (1.7)	94 (1.8)	64 (3.8)	60 (3.0)	15 (2.7)	13 (1.9)	1 (0.6)	0 (0.2)
STATES								
Alabama	94 (0.7)	94 (1.1)	54 (2.1)	53 (1.8)	9 (1.1)	8 (0.8)	0 (0.2)	0 (0.2)
Arizona	96 (0.8)	95 (1.0)	65 (2.1)	59 (2.0)	15 (1.3)	10 (1.0)	1 (0.3)	0 (0.2)
Arkansas	95 (0.8)	96 (0.9)	59 (1.7)	58 (1.9)	10 (0.9)	7 (0.9)	0 (0.2)	0 (0.1)
California	94 (0.9)	92 (1.1)	58 (2.0)	56 (1.5)	13 (1.5)	11 (1.2)	1 (0.2)	0 (0.3)
Colorado	98 (0.6)	96 (0.7)	72 (1.5)	69 (1.6)	17 (1.2)	15 (1.4)	1 (0.3)	0 (0.2)
Connecticut	97 (0.5)	97 (0.8)	73 (1.7)	70 (1.8)	23 (1.5)	19 (1.4)	1 (0.3)	1 (0.2)
Delaware	94 (1.0)	96 (0.8)	60 (2.0)	62 (1.9)	15 (1.2)	12 (1.5)	1 (0.5)	0 (0.3)
Dist. Columbia	82 (1.4)	84 (1.4)	25 (1.6)	28 (1.5)	2 (0.6)	3 (0.6)	0 (0.4)	0 (0.2)
Florida	93 (1.0)	93 (0.9)	56 (1.9)	55 (2.0)	13 (1.1)	10 (1.1)	0 (0.1)	0 (0.2)
Georgia	94 (0.7)	95 (1.0)	60 (1.8)	59 (1.9)	14 (1.7)	12 (1.2)	1 (0.5)	0 (0.3)
Hawaii	88 (1.0)	92 (0.9)	47 (1.7)	55 (1.7)	11 (1.1)	12 (1.0)	1 (0.2)	1 (0.2)
Idaho	99 (0.5)	99 (0.5)	77 (1.3)	76 (1.5)	19 (1.6)	15 (1.5)	0 (0.1)	0 (0.3)
Indiana	99 (0.4)	97 (0.7)	72 (1.6)	68 (2.1)	18 (1.5)	13 (1.5)	1 (0.4)	0 (0.2)
Iowa	100 (0.3)	99 (0.5)	82 (1.3)	80 (1.6)	27 (1.6)	21 (1.7)	1 (0.3)	0 (0.2)
Kentucky	97 (0.5)	95 (0.9)	59 (2.0)	57 (2.1)	11 (1.0)	9 (0.8)	0 (0.3)	0 (0.0)
Louisiana	92 (0.9)	92 (1.0)	47 (2.0)	45 (2.2)	6 (0.9)	4 (0.6)	0 (0.2)	0 (0.1)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	94 (0.9)	95 (0.9)	61 (1.7)	61 (2.2)	17 (1.3)	15 (1.5)	1 (0.4)	0 (0.2)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	97 (0.6)	97 (0.5)	67 (1.6)	66 (1.8)	16 (1.4)	14 (1.4)	1 (0.3)	1 (0.3)
Minnesota	98 (0.5)	98 (0.5)	78 (1.5)	80 (1.3)	24 (1.6)	21 (1.4)	2 (0.6)	0 (0.2)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	98 (0.6)	98 (0.5)	79 (1.5)	79 (1.7)	25 (1.8)	22 (1.6)	1 (0.4)	0 (0.3)
New Hampshire	98 (0.6)	99 (0.4)	77 (1.6)	78 (1.8)	19 (1.6)	20 (1.8)	1 (0.3)	0 (0.4)
New Jersey	98 (0.7)	97 (0.7)	72 (1.9)	69 (1.6)	22 (1.6)	19 (1.3)	1 (0.4)	1 (0.2)
New Mexico	97 (0.6)	95 (0.8)	61 (1.5)	54 (1.5)	12 (1.3)	8 (1.1)	1 (0.3)	0 (0.1)
New York	95 (1.1)	93 (1.4)	63 (2.2)	62 (2.4)	16 (1.2)	13 (1.0)	1 (0.4)	1 (0.4)
North Carolina	92 (1.2)	92 (0.7)	50 (1.9)	51 (1.7)	8 (0.8)	8 (0.8)	0 (0.1)	0 (0.1)
North Dakota	99 (0.4)	99 (0.5)	88 (1.7)	84 (1.9)	29 (2.3)	23 (2.2)	2 (0.7)	0 (0.4)
Ohio	97 (0.7)	97 (0.6)	69 (1.6)	63 (1.9)	16 (1.3)	12 (1.2)	0 (0.2)	0 (0.1)
Oklahoma	98 (0.7)	97 (0.8)	69 (1.9)	64 (1.9)	15 (1.5)	11 (1.3)	0 (0.3)	0 (0.1)
Pennsylvania	97 (0.7)	96 (0.8)	71 (2.1)	67 (2.7)	19 (1.8)	13 (1.3)	1 (0.3)	0 (0.2)
Rhode Island	96 (0.7)	94 (0.8)	62 (1.3)	60 (1.3)	15 (1.2)	12 (1.1)	0 (0.3)	0 (0.1)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	95 (0.9)	95 (1.0)	61 (2.2)	56 (1.9)	14 (1.3)	11 (1.3)	1 (0.4)	0 (0.2)
Utah	xxx (xxx)	xx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	97 (0.6)	97 (0.6)	65 (1.9)	63 (1.7)	19 (2.1)	15 (1.4)	2 (0.6)	1 (0.4)
West Virginia	96 (0.8)	96 (0.8)	57 (2.1)	57 (1.7)	9 (1.1)	8 (1.0)	0 (0.1)	0 (0.2)
Wisconsin	99 (0.5)	98 (0.6)	78 (1.6)	77 (1.9)	24 (1.5)	21 (1.9)	1 (0.3)	1 (0.3)
Wyoming	99 (0.3)	99 (0.3)	80 (1.2)	76 (1.5)	20 (1.3)	15 (1.0)	0 (0.2)	0 (0.1)
TERRITORIES								
Guam	79 (2.0)	79 (1.5)	32 (1.9)	31 (2.2)	4 (0.7)	3 (0.6)	0 (0.2)	0 (0.1)
Virgin Islands	76 (1.7)	72 (2.3)	15 (1.8)	12 (1.0)	1 (0.6)	0 (0.2)	0 (0.1)	0 (0.0)

(xxx) Did not participate in the 1990 Trial State Assessment.

Anchor-Level Results by Type of Community

The anchor-level results for students attending schools in different types of communities are presented for the nation in TABLE A.8 and by state in TABLE A.9. The pattern across the data shows greater percentages of students in advantaged urban schools reaching higher anchor levels on the scale than their counterparts in disadvantaged urban schools. Students attending schools in extreme rural communities tended to have achievement between that of the two urban groups, although in some states they performed as well as the students in advantaged urban schools.

The trends between the two assessments indicate little change in the relative standing of these groups. Statistically significant changes in results for the anchor levels by type of community were relatively rare across the states and territories. Advantaged urban students showed gains at Levels 250 and 300 in New Hampshire and at Level 300 in Texas. In Hawaii, fewer advantaged urban students performed at or above Level 300 in 1992 than in 1990. The only increase for disadvantaged urban students was found in Oklahoma at Level 250. Students attending schools in extreme rural communities improved in Louisiana at both Levels 200 and 250 and in Iowa at Level 250. In Guam, particularly at or above Level 250, but also for Level 300, lower percentages of students were found in 1992 than in 1990. Students attending schools in other types of communities showed improvement in Rhode Island at Level 200, in Connecticut, the District of Columbia, Hawaii, Nebraska, North Carolina, Rhode Island, and Guam at Level 250 as well as in Colorado, Connecticut, the District of Columbia, New Jersey, Pennsylvania, and Guam at Level 300.

TABLE A.8 Average Mathematics Proficiency and Anchor Levels by Type of Community, Grades 4, 8, and 12

	Assessment Years	Percent of Students	Average Proficiency	Percentage of Students At or Above			
				Level 200	Level 250	Level 300	Level 350
Grade 4							
Advantaged Urban	**1992**	12(1.8)	237(2.1)	90(1.9)	34(2.9)	2(0.6)	0(0.0)
	1990	11(2.5)	231(3.0)!	86(2.9)	26(4.9)	0(0.4)	0(0.0)
Disadvantaged Urban	**1992**	9(1.4)	193(2.8)	42(4.0)	3(1.0)	0(0.0)	0(0.0)
	1990	10(1.5)	195(3.0)	45(4.4)	3(1.4)	0(0.0)	0(0.0)
Extreme Rural	**1992**	12(2.2)	216(3.6)	71(5.0)	14(2.6)	0(0.0)	0(0.0)
	1990	10(1.9)	214(4.9)	70(6.5)	11(3.0)	0(0.3)	0(0.0)
Other	**1992**	66(3.0)	219(0.9)>	74(1.1)>	16(1.0)>	0(0.1)	0(0.0)
	1990	70(3.6)	213(1.1)	67(1.7)	11(1.1)	0(0.1)	0(0.0)
Grade 8							
Advantaged Urban	**1992**	10(1.8)	288(3.6)	99(0.6)	86(3.0)	40(4.2)	2(0.8)
	1990	11(2.9)	280(3.2)!	99(1.0)	84(3.6)	27(4.1)	2(1.2)
Disadvantaged Urban	**1992**	9(1.3)	238(2.6)<	87(2.7)	34(3.1)	5(1.2)	0(0.1)
	1990	10(2.5)	249(3.8)!	92(2.1)	49(5.0)	9(2.7)	0(0.1)
Extreme Rural	**1992**	9(2.6)	267(4.6)!	98(1.0)	71(5.7)	16(3.3)	0(0.4)
	1990	9(2.8)	257(4.4)!	95(2.7)	58(6.7)	9(2.5)	0(0.0)
Other	**1992**	72(3.1)	268(1.1)>	97(0.3)	69(1.4)	19(1.0)>	1(0.2)
	1990	70(3.9)	262(1.7)	95(1.0)	65(1.9)	14(1.1)	0(0.2)
Grade 12							
Advantaged Urban	**1992**	12(2.1)	316(2.6)	100(0.3)	96(0.9)	71(3.5)	15(2.3)
	1990	9(2.8)	306(6.2)!	100(0.4)	92(2.4)	60(7.8)	11(3.1)
Disadvantaged Urban	**1992**	10(1.4)	279(2.4)	100(0.3)	80(2.7)	28(3.0)	2(0.6)
	1990	10(2.7)	276(6.0)!	98(1.1)	79(5.1)	24(6.6)	2(1.6)
Extreme Rural	**1992**	12(1.6)	293(1.9)	100(0.2)	90(1.5)	41(3.9)	3(0.7)
	1990	10(3.2)	293(3.3)!	100(0.4)	88(1.9)	44(4.9)	4(1.8)
Other	**1992**	66(3.0)	300(0.9)>	100(0.1)	92(0.7)>	51(1.2)	6(0.5)
	1990	71(4.4)	295(1.3)	100(0.2)	89(1.1)	46(1.7)	5(0.9)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. ! Interpret with caution -- the nature of the sample does not allow accurate determination of the variability of this estimated statistic. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details). When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 percent or less were rounded to 0 percent.

TABLE A.9 | Anchor Levels by Type of Community

PUBLIC SCHOOLS	Grade 4 - 1992							
	Percentage of Students At or Above Level 200				Percentage of Students At or Above Level 250			
	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	90 (2.7)!	42 (4.1)	71 (5.1)	73 (1.2)	39 (4.2)!	3 (1.0)	14 (2.5)	16 (1.0)
Northeast	92 (2.3)!	58 (6.0)!	*** (***)	74 (3.4)	42 (5.8)!	6 (1.9)!	*** (***)	19 (3.0)
Southeast	90 (8.2)!	38 (6.0)!	53 (8.0)!	67 (2.8)	37 (7.2)!	2 (1.0)!	7 (3.9)!	10 (1.7)
Central	84(14.1)!	36 (5.9)!	89 (6.0)!	80 (2.2)	40(13.6)!	1 (0.4)!	20 (5.3)!	19 (2.0)
West	90 (4.8)!	24 (6.2)!	71 (5.0)!	71 (2.4)	33(11.1)!	0 (0.5)!	11 (3.5)!	15 (2.1)
STATES								
Alabama	85 (4.1)!	39 (4.2)!	54 (5.1)!	60 (2.9)	28 (6.8)!	2 (0.8)!	6 (1.6)!	9 (1.4)
Arizona	86 (3.7)!	64 (7.0)!	56 (8.1)!	65 (2.5)	24 (3.8)!	7 (2.3)!	8 (2.3)!	11 (1.4)
Arkansas	*** (***)	43 (4.6)!	63 (3.0)	64 (2.2)	*** (***)	2 (1.8)!	8 (1.5)	10 (1.1)
California	87 (2.3)!	38 (4.3)	*** (***)	64 (2.6)	27 (3.7)!	3 (0.9)	*** (***)	12 (1.2)
Colorado	86 (1.5)	54 (3.5)!	74 (2.8)!	75 (2.1)	29 (2.3)	7 (2.3)!	15 (3.0)!	15 (1.3)
Connecticut	93 (2.4)!	43 (5.1)!	*** (***)	86 (1.2)	33 (2.9)!	4 (2.1)!	*** (***)	26 (2.0)
Delaware	68 (3.5)	60 (8.0)	68 (2.5)	72 (1.6)	19 (4.2)	7 (2.8)	10 (1.0)	19 (1.3)
Dist. Columbia	61 (2.8)	29 (2.2)	*** (***)	41 (2.9)	16 (1.4)	1 (0.3)	*** (***)	8 (0.8)
Florida	85 (3.6)!	44 (3.4)	62 (7.3)!	70 (2.1)	27 (4.0)!	3 (1.0)	6 (5.1)!	12 (1.2)
Georgia	94 (2.0)!	45 (5.2)!	67 (4.3)!	67 (2.6)	35 (5.3)!	4 (1.3)!	13 (2.7)!	13 (1.5)
Hawaii	79 (3.5)!	42 (3.4)!	61 (4.2)!	68 (2.0)	28 (3.3)!	4 (2.6)!	9 (2.7)!	14 (1.2)
Idaho	91 (2.1)!	*** (***)	75 (2.4)	76 (2.4)	26 (3.5)!	*** (***)	14 (1.7)	14 (1.1)
Indiana	90 (2.7)!	47 (5.6)!	79 (2.1)!	76 (1.8)	29 (3.4)!	3 (1.2)!	14 (2.4)!	14 (1.3)
Iowa	93 (2.7)!	74 (5.9)!	84 (1.8)	85 (2.1)	37 (4.7)!	15 (2.6)!	24 (2.0)	24 (1.9)
Kentucky	85 (6.8)!	59 (5.7)!	69 (2.2)	66 (2.1)	31 (3.6)!	8 (2.9)!	11 (1.5)	10 (1.2)
Louisiana	81 (4.5)!	32 (4.9)	56 (7.0)!	57 (2.8)	20 (3.1)!	2 (0.9)	6 (2.2)!	7 (0.9)
Maine	*** (***)	*** (***)	86 (2.8)!	87 (1.4)	*** (***)	*** (***)	26 (3.7)!	26 (1.8)
Maryland	82 (3.9)	39 (7.3)!	77 (6.5)!	68 (2.1)	32 (4.0)	3 (1.5)!	18 (4.0)!	16 (1.7)
Massachusetts	94 (1.9)!	50 (4.6)	*** (***)	85 (1.7)	38 (5.6)!	6 (2.0)	*** (***)	23 (1.8)
Michigan	92 (2.0)!	38 (6.1)!	78 (4.2)!	80 (2.1)	38 (5.8)!	4 (1.4)!	12 (3.2)!	19 (2.0)
Minnesota	89 (4.3)!	*** (***)	81 (2.7)	80 (1.9)	36 (4.5)!	*** (***)	21 (1.8)	23 (1.9)
Mississippi	*** (***)	41 (5.3)!	57 (6.0)	49 (1.8)	*** (***)	0 (0.4)!	7 (2.7)	6 (0.6)
Missouri	90 (2.5)!	42 (6.3)!	78 (2.7)	80 (1.8)	37 (6.9)!	3 (2.0)!	16 (1.8)	17 (1.8)
Nebraska	91 (2.2)!	56 (3.0)!	79 (3.3)	78 (2.0)	36 (3.1)!	9 (4.2)!	19 (2.9)	20 (2.3)
New Hampshire	88 (3.0)!	*** (***)	88 (3.6)!	84 (1.4)	30 (3.8)!	*** (***)	27 (5.8)!	23 (1.9)
New Jersey	94 (1.3)	44 (7.3)!	*** (***)	85 (1.9)	40 (3.9)	4 (2.2)!	*** (***)	22 (1.9)
New Mexico	88 (6.2)!	46 (5.5)!	59(16.4)!	64 (2.4)	25 (4.8)!	5 (1.5)!	2 (3.1)!	9 (1.5)
New York	85 (3.6)!	49 (4.0)	*** (***)	78 (2.8)	26 (3.0)!	6 (1.8)	*** (***)	17 (2.6)
North Carolina	87 (1.8)!	54 (4.4)!	62 (4.6)!	63 (1.8)	30 (3.3)!	6 (2.5)!	9 (1.6)!	11 (1.0)
North Dakota	91 (2.9)!	*** (***)	84 (1.5)	83 (1.5)	32 (3.5)!	*** (***)	19 (2.0)	19 (1.7)
Ohio	90 (3.0)!	45 (4.5)	74 (3.6)!	76 (2.2)	34 (3.4)!	4 (0.9)	10 (1.9)!	17 (1.9)
Oklahoma	87 (3.8)!	69 (5.9)!	78 (2.8)	76 (1.9)	22 (5.5)!	8 (3.3)!	13 (2.4)	13 (1.6)
Pennsylvania	89 (3.2)!	43 (4.5)	37 (1.4)!	82 (1.7)	35 (5.6)!	4 (1.4)	23 (2.6)!	21 (1.6)
Rhode Island	89 (2.8)!	40 (4.7)!	*** (***)	75 (2.4)	30 (3.8)!	2 (0.7)!	*** (***)	14 (1.5)
South Carolina	84 (1.9)!	40 (4.7)!	56 (4.5)!	64 (1.6)	26 (6.1)!	2 (1.7)!	7 (2.0)!	12 (1.2)
Tennessee	83 (6.4)!	35 (5.1)!	59 (6.2)!	66 (2.2)	24 (4.0)!	1 (0.8)!	6 (1.9)!	9 (1.1)
Texas	95 (1.5)!	57 (5.5)!	78 (4.0)!	70 (2.7)	38 (4.9)!	10 (2.9)!	17 (3.0)!	11 (1.1)
Utah	87 (1.8)	61 (7.6)!	75 (4.3)!	79 (1.7)	29 (2.7)	8 (3.4)!	17 (3.9)!	16 (1.3)
Virginia	90 (2.0)!	51 (4.6)!	68 (3.5)!	73 (2.6)	30 (5.2)!	3 (0.9)!	9 (1.9)!	18 (2.2)
West Virginia	*** (***)	61 (5.2)!	68 (3.2)!	68 (2.0)	*** (***)	11 (3.6)!	10 (2.2)!	11 (1.3)
Wisconsin	90 (2.7)!	56 (6.3)!	87 (2.4)	85 (1.7)	42 (6.7)!	9 (3.3)!	23 (2.6)	23 (1.8)
Wyoming	87 (3.2)!	74 (5.5)!	87 (2.5)	81 (1.7)	29 (4.9)!	7 (2.6)!	21 (2.9)	17 (1.5)
TERRITORY								
Guam	*** (***)	*** (***)	30 (3.3)	45 (1.5)	*** (***)	*** (***)	2 (0.8)	5 (0.7)

The standard errors of the estimated percentages appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. ***Sample size insufficient to permit reliable estimate. There were fewer than 62 students. ! Interpret with caution - the nature of the sample does not allow accurate determination of the variability of this estimated statistic.

TABLE A.9 | Anchor Levels by Type of Community (continued)

PUBLIC SCHOOLS	Grade 4 - 1992							
	Percentage of Students At or Above Level 300				Percentage of Students At or Above Level 350			
	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	2 (0.9)!	0 (0.0)	0 (0.0)	0 (0.1)	0 (0.0)!	0 (0.0)	0 (0.0)	0 (0.0)
Northeast	2 (1.4)!	0 (0.0)!	*** (***)	0 (0.3)	0 (0.0)!	0 (0.0)!	*** (***)	0 (0.0)
Southeast	2 (1.8)!	0 (0.0)!	0 (0.0)!	0 (0.4)	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.0)
Central	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.2)	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.0)
West	4 (2.9)!	0 (0.0)!	0 (0.0)!	0 (0.2)	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.0)
STATES								
Alabama	0 (0.2)!	0 (0.0)!	0 (0.0)!	0 (0.1)	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.0)
Arizona	0 (0.1)!	0 (0.2)!	0 (0.2)!	0 (0.1)	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.0)
Arkansas	*** (***)	0 (0.0)!	0 (0.2)	0 (0.1)	*** (***)	0 (0.0)!	0 (0.0)	0 (0.0)
California	1 (0.5)!	0 (0.0)	*** (***)	0 (0.1)	0 (0.0)!	0 (0.0)	*** (***)	0 (0.0)
Colorado	1 (0.4)	0 (0.1)!	0 (0.0)!	0 (0.2)	0 (0.0)	0 (0.0)!	0 (0.0)!	0 (0.0)
Connecticut	1 (0.8)!	0 (0.4)!	*** (***)	1 (0.5)	0 (0.0)!	0 (0.0)!	*** (***)	0 (0.0)
Delaware	0 (0.5)	0 (0.0)	0 (0.1)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Dist. Columbia	1 (0.8)	0 (0.0)	*** (***)	0 (0.1)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)
Florida	1 (0.7)!	0 (0.0)	0 (0.0)!	0 (0.1)	0 (0.0)!	0 (0.0)	0 (0.0)!	0 (0.0)
Georgia	0 (0.3)!	0 (0.0)!	0 (0.3)!	0 (0.1)	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.0)
Hawaii	1 (0.7)!	0 (0.0)!	0 (0.0)!	0 (0.1)	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.0)
Idaho	0 (0.3)!	*** (***)	0 (0.2)	0 (0.1)	0 (0.0)!	*** (***)	0 (0.0)	0 (0.0)
Indiana	1 (0.8)!	0 (0.0)!	0 (0.0)!	0 (0.1)	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.0)
Iowa	1 (1.1)!	0 (0.0)!	0 (0.2)	0 (0.2)	0 (0.0)!	0 (0.0)!	0 (0.0)	0 (0.0)
Kentucky	1 (1.2)!	0 (0.0)!	0 (0.1)	0 (0.0)	0 (0.0)!	0 (0.0)!	0 (0.0)	0 (0.0)
Louisiana	0 (0.0)!	0 (0.0)	0 (0.0)!	0 (0.1)	0 (0.0)!	0 (0.0)	0 (0.0)!	0 (0.0)
Maine	*** (***)	*** (***)	0 (0.4)!	1 (0.3)	*** (***)	*** (***)	0 (0.0)!	0 (0.0)
Maryland	1 (0.6)	0 (0.0)!	0 (0.0)!	0 (0.2)	0 (0.0)	0 (0.0)!	0 (0.0)!	0 (0.0)
Massachusetts	2 (0.7)!	0 (0.0)	*** (***)	0 (0.2)	0 (0.0)!	0 (0.0)	*** (***)	0 (0.0)
Michigan	1 (0.8)!	0 (0.0)!	0 (0.4)!	0 (0.3)	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.0)
Minnesota	0 (0.4)!	*** (***)	0 (0.1)	0 (0.2)	0 (0.0)!	*** (***)	0 (0.0)	0 (0.0)
Mississippi	*** (***)	0 (0.0)!	0 (0.5)	0 (0.0)	*** (***)	0 (0.0)!	0 (0.0)	0 (0.0)
Missouri	1 (0.9)!	0 (0.0)!	0 (0.2)	0 (0.1)	0 (0.0)!	0 (0.0)!	0 (0.0)	0 (0.0)
Nebraska	1 (0.6)!	0 (0.0)!	0 (0.4)	0 (0.2)	0 (0.0)!	0 (0.0)!	0 (0.0)	0 (0.0)
New Hampshire	1 (1.0)!	*** (***)	1 (1.0)!	0 (0.2)	0 (0.0)!	*** (***)	0 (0.0)!	0 (0.0)
New Jersey	1 (0.5)	0 (0.1)!	*** (***)	0 (0.4)	0 (0.0)	0 (0.0)!	*** (***)	0 (0.0)
New Mexico	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.1)	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.0)
New York	1 (0.5)!	0 (0.0)	*** (***)	0 (0.1)	0 (0.0)!	0 (0.0)	*** (***)	0 (0.0)
North Carolina	1 (1.4)!	0 (0.0)!	0 (0.2)!	0 (0.1)	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.0)
North Dakota	1 (0.6)!	*** (***)	0 (0.3)	0 (0.1)	0 (0.0)!	*** (***)	0 (0.0)	0 (0.0)
Ohio	1 (0.5)!	0 (0.0)	0 (0.0)!	0 (0.1)	0 (0.0)!	0 (0.0)	0 (0.0)!	0 (0.0)
Oklahoma	0 (0.7)!	0 (0.2)!	0 (0.0)	0 (0.2)	0 (0.0)!	0 (0.0)!	0 (0.0)	0 (0.0)
Pennsylvania	1 (0.6)!	0 (0.0)	0 (0.5)!	0 (0.2)	0 (0.0)!	0 (0.0)	0 (0.0)!	0 (0.0)
Rhode Island	1 (0.5)!	0 (0.0)!	*** (***)	0 (0.2)	0 (0.0)!	0 (0.0)!	*** (***)	0 (0.0)
South Carolina	0 (0.4)!	0 (0.0)!	0 (0.3)!	0 (0.1)	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.0)
Tennessee	0 (0.8)!	0 (0.0)!	0 (0.0)!	0 (0.0)	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.0)
Texas	0 (0.7)!	0 (0.2)!	0 (0.4)!	0 (0.1)	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.0)
Utah	1 (0.6)	0 (0.0)!	0 (0.0)!	0 (0.2)	0 (0.0)	0 (0.0)!	0 (0.0)!	0 (0.0)
Virginia	1 (1.0)!	0 (0.0)!	0 (0.1)!	0 (0.2)	0 (0.0)!	0 (0.0)!	0 (0.0)!	0 (0.0)
West Virginia	*** (***)	0 (0.2)!	0 (0.0)!	0 (0.1)	*** (***)	0 (0.0)!	0 (0.0)!	0 (0.0)
Wisconsin	2 (1.5)!	0 (0.0)!	0 (0.2)	0 (0.4)	0 (0.0)!	0 (0.0)!	0 (0.0)	0 (0.0)
Wyoming	0 (0.3)!	0 (0.0)!	0 (0.3)	0 (0.1)	0 (0.0)!	0 (0.0)!	0 (0.0)	0 (0.0)
TERRITORY								
Guam	*** (***)	*** (***)	0 (0.2)	0 (0.0)	*** (***)	*** (***)	0 (0.0)	0 (0.0)

TABLE A.9 | Anchor Levels by Type of Community (continued)

PUBLIC SCHOOLS	Grade 8 - 1992							
	Percentage of Students At or Above Level 200				Percentage of Students At or Above Level 250			
	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	99 (0.8)!	87 (2.7)	98 (1.1)!	97 (0.4)	83 (3.6)!	34 (3.1)	71 (5.7)!	69 (1.5)
Northeast	99 (1.7)!	90 (3.1)!	*** (***)	97 (1.1)	88 (4.5)!	28 (3.6)!	*** (***)	65 (3.7)
Southeast	97 (1.1)!	86 (6.1)!	97 (2.4)!	96 (1.0)	72 (2.0)!	34 (7.3)!	57 (6.5)!	61 (2.2)
Central	100 (0.4)!	86 (3.4)!	100 (0.6)!	99 (0.4)	86 (3.5)!	30 (7.8)!	86 (5.0)!	78 (2.4)
West	98 (2.5)!	88 (3.6)!	95 (1.9)!	97 (0.5)	81 (8.7)!	44 (5.3)!	68 (6.1)!	69 (2.8)
STATES								
Alabama	99 (2.0)!	87 (3.0)!	96 (1.3)!	93 (1.9)	62 (4.8)!	31 (6.0)!	55 (3.7)!	54 (2.5)
Arizona	100 (0.4)!	94 (2.2)!	94 (3.0)!	97 (0.7)	84 (3.8)!	53 (5.0)!	56(12.1)!	67 (2.1)
Arkansas	*** (***)	85 (5.2)!	98 (0.7)!	94 (0.9)	*** (***)	36 (7.4)!	64 (3.9)!	57 (1.8)
California	99 (1.0)!	84 (3.0)	*** (***)	96 (0.8)	87 (3.3)!	36 (4.4)	*** (***)	65 (2.7)
Colorado	99 (0.6)	93 (1.4)!	99 (1.2)!	98 (0.5)	87 (2.1)	54 (3.9)!	79 (3.2)!	75 (1.8)
Connecticut	99 (0.8)!	90 (2.8)	*** (***)	99 (0.4)	80 (4.5)!	41 (3.9)	*** (***)	81 (1.9) >
Delaware	*** (***)	*** (***)	96 (1.3)	95 (0.9)	*** (***)	*** (***)	67 (2.5)	63 (1.5)
Dist. Columbia	93 (3.3)	79 (1.5)	*** (***)	90 (1.8)	53 (5.1)	21 (2.0)	*** (***)	51 (2.5) »
Florida	98 (1.4)!	90 (3.8)!	91 (3.5)!	95 (1.0)	70 (5.7)!	49 (6.4)!	62 (6.7)!	62 (2.6)
Georgia	97 (1.2)!	92 (2.9)!	93 (2.8)!	96 (0.7)	76 (7.6)!	48 (5.1)!	47 (3.5)!	61 (2.0)
Hawaii	94 (3.0)	84 (2.8)	*** (***)	94 (1.0)	54 (5.4)	38 (3.3)	*** (***)	60 (1.8) >
Idaho	100 (0.0)!	99 (0.9)!	99 (0.5)	99 (0.3)	91 (2.5)!	83 (5.0)!	80 (2.0)	79 (1.4)
Indiana	99 (0.7)!	91 (2.0)!	98 (1.3)	99 (0.4)	88 (4.7)!	42 (2.4)!	71 (4.0)	77 (1.6)
Iowa	100 (0.0)!	97 (1.8)!	100 (0.2)	99 (0.3)	92 (3.1)!	73 (3.8)!	91 (1.6) >	84 (1.6)
Kentucky	99 (1.2)!	94 (2.9)!	96 (1.5)!	97 (0.7)	83 (5.2)!	51 (4.1)!	67 (3.0)!	65 (1.7)
Louisiana	*** (***)	79 (3.9)	96 (0.8)! >	95 (0.9)	*** (***)	26 (4.4)	57 (6.4)! >	53 (2.3)
Maine	*** (***)	*** (***)	98 (1.0)!	99 (0.4)	*** (***)	*** (***)	83 (2.9)!	83 (1.4)
Maryland	99 (0.6)	86 (4.6)!	*** (***)	96 (1.1)	82 (3.6)	38 (8.5)!	*** (***)	66 (2.8)
Massachusetts	100 (0.0)!	93 (2.0)	*** (***)	99 (0.5)	95 (3.0)!	45 (5.4)	*** (***)	80 (2.3)
Michigan	99 (1.1)!	85 (2.6)	100 (0.4)!	99 (0.4)	87 (6.1)!	36 (4.3)	81 (2.7)!	73 (1.9)
Minnesota	100 (0.0)!	*** (***)	100 (0.4)!	99 (0.3)	87 (3.1)!	*** (***)	84 (2.2)!	83 (1.5)
Mississippi	*** (***)	89 (3.7)!	91 (3.0)!	90 (1.1)	*** (***)	38 (7.4)!	44 (6.1)!	44 (2.0)
Missouri	98 (1.1)!	93 (2.9)!	99 (0.7)!	99 (0.4)	74 (4.0)!	51 (7.0)!	76 (3.4)!	77 (1.7)
Nebraska	*** (***)	91 (3.9)	99 (0.3)	99 (0.4)	*** (***)	50 (5.1)	84 (2.4)	81 (1.5) >
New Hampshire	100 (0.0)!	*** (***)	100 (1.2)!	99 (0.3)	95 (3.3)! >	*** (***)	85 (4.5)!	82 (1.3)
New Jersey	100 (0.0)!	89 (2.4)	*** (***)	100 (0.3)	93 (2.4)!	34 (4.3)	*** (***)	83 (1.5) >
New Mexico	100 (0.0)	96 (2.0)!	94 (3.2)!	97 (0.6)	88 (3.1)	55 (4.9)!	63(11.5)!	61 (1.9)
New York	100 (0.0)!	78 (4.8)!	99 (0.5)!	97 (1.4)	90 (2.0)!	29 (5.6)!	82 (4.3)!	72 (3.4)
North Carolina	99 (1.3)!	90 (3.0)!	92 (2.6)!	95 (0.9)	78(12.2)!	39 (6.6)!	53 (4.7)!	60 (1.8) >
North Dakota	100 (0.0)!	*** (***)	100 (0.2)	100 (0.3)	91 (4.0)!	*** (***)	87 (1.9)	86 (1.4)
Ohio	100 (0.8)!	92 (1.9)	100 (0.0)!	98 (0.5)	92 (3.5)!	45 (4.0)	83 (4.3)!	74 (2.7)
Oklahoma	*** (***)	99 (1.4)!	98 (1.4)!	97 (0.5)	*** (***)	76 (4.4)! >	72 (4.1)!	73 (1.9)
Pennsylvania	100 (0.0)!	90 (3.2)!	99 (0.5)!	99 (0.3)	86 (5.6)!	43 (6.4)!	80 (3.5)!	79 (1.4)
Rhode Island	100 (0.0)	87 (2.9)	*** (***)	98 (0.4) »	85 (3.0)	41 (2.2)	*** (***)	73 (1.5) »
South Carolina	99 (1.0)!	92 (2.1)!	99 (1.5)!	96 (0.6)	84 (7.5)!	45 (6.3)!	69 (4.9)!	59 (1.5)
Tennessee	100 (1.1)!	81 (4.8)!	98 (1.5)!	96 (0.6)	82 (2.6)!	27(11.5)!	64 (3.4)!	61 (2.0)
Texas	100 (0.5)!	93 (1.4)!	98 (2.0)!	96 (0.7)	89 (2.7)!	46 (3.6)!	63 (7.5)!	65 (2.3)
Utah	100 (0.5)	99 (0.7)!	98 (1.6)!	98 (0.3)	85 (3.1)	74 (3.9)!	73 (2.1)!	77 (1.5)
Virginia	99 (0.6)!	93 (1.6)!	97 (1.5)!	97 (0.5)	87 (2.8)!	52 (6.4)!	62 (5.1)!	67 (1.9)
West Virginia	*** (***)	97 (1.2)	97 (1.2)!	97 (0.7)	*** (***)	59 (2.8)	58 (3.7)!	61 (1.9)
Wisconsin	100 (0.8)!	88 (5.3)!	99 (0.4)!	99 (0.4)	92 (4.1)!	38 (3.8)!	88 (3.5)!	80 (1.7)
Wyoming	*** (***)	100 (0.5)!	99 (0.6)!	99 (0.3)	*** (***)	77 (5.6)!	81 (3.4)!	81 (1.3)
TERRITORIES								
Guam	*** (***)	*** (***)	63 (6.1)	83 (1.2)	*** (***)	*** (***)	18 (3.4) «	37 (1.6) >
Virgin Islands	*** (***)	*** (***)	67 (3.5)	73 (2.6)	*** (***)	*** (***)	16 (2.4)	14 (1.6)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

TABLE A.9 | Anchor Levels by Type of Community (continued)

PUBLIC SCHOOLS	Grade 8 - 1992							
	Percentage of Students At or Above Level 300				Percentage of Students At or Above Level 350			
	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	37 (5.4)!	5 (1.3)	16 (3.2)!	19 (1.0)	2 (1.1)!	0 (0.1)	0 (0.4)!	1 (0.2)
Northeast	44 (8.4)!	2 (1.1)!	*** (***)	20 (3.0)	3 (2.2)!	0 (0.0)!	*** (***)	1 (0.3)
Southeast	25 (3.0)!	5 (2.3)!	7 (2.8)!	13 (1.3)	0 (0.7)!	0 (0.3)!	0 (0.1)!	0 (0.1)
Central	38(13.5)!	4 (3.3)!	25 (3.1)!	22 (2.6)	1 (1.1)!	0 (0.0)!	1 (1.3)!	1 (0.3)
West	35(13.0)!	8 (2.7)!	17 (5.0)!	19 (1.9)	3 (2.9)!	0 (0.3)!	0 (0.0)!	1 (0.4)
STATES								
Alabama	13 (6.9)!	5 (2.4)!	7 (1.2)!	11 (1.5)	0 (0.0)!	0 (0.2)!	0 (0.0)!	0 (0.1)
Arizona	24 (5.2)!	5 (1.5)!	11 (4.2)!	14 (1.3)	1 (1.0)!	0 (0.2)!	0 (0.0)!	0 (0.1)
Arkansas	*** (***)	3 (2.0)!	8 (1.8)!	9 (0.9)	*** (***)	0 (0.0)!	0 (0.3)!	0 (0.1)
California	41 (7.3)!	3 (1.4)	*** (***)	16 (1.5)	4 (2.8)!	0 (0.0)	*** (***)	0 (0.3)
Colorado	30 (2.9)	11 (2.1)!	19 (3.3)!	20 (1.5) >	1 (0.5)	0 (0.2)!	0 (0.4)!	1 (0.2)
Connecticut	37 (7.3)!	5 (2.0)	*** (***)	27 (1.7) »	1 (1.1)!	0 (0.3)	*** (***)	1 (0.3)
Delaware	*** (***)	*** (***)	12 (2.2)	15 (1.0)	*** (***)	*** (***)	0 (0.5)	1 (0.3)
Dist. Columbia	9 (2.7)	1 (0.3)	*** (***)	13 (3.8) >	0 (0.5)	0 (0.0)	*** (***)	1 (0.9)
Florida	22 (4.7)!	11 (3.0)!	9 (3.3)!	14 (1.5)	1 (0.9)!	0 (0.2)!	0 (0.0)!	0 (0.2)
Georgia	23 (4.5)!	5 (1.7)!	6 (3.9)!	12 (1.3)	0 (0.5)!	0 (0.0)!	0 (0.0)!	0 (0.3)
Hawaii	12 (2.1) <	6 (1.1)	*** (***)	13 (1.0)	1 (1.3)	0 (0.8)	*** (***)	0 (0.2)
Idaho	35 (9.6)!	25 (7.9)!	19 (2.3)	21 (1.3)	1 (1.0)!	0 (0.5)!	0 (0.3)	0 (0.3)
Indiana	34 (5.2)!	4 (0.9)!	16 (3.5)	20 (1.6)	2 (1.0)!	0 (0.0)!	0 (0.4)	1 (0.3)
Iowa	43 (9.2)!	17 (6.5)!	32 (2.3)	27 (2.0)	1 (1.7)!	0 (1.5)!	1 (0.4)	1 (0.5)
Kentucky	39 (6.0)!	8 (2.1)!	12 (2.0)!	13 (1.2)	2 (1.6)!	0 (0.4)!	0 (0.0)!	0 (0.3)
Louisiana	*** (***)	1 (0.7)	5 (3.1)!	8 (1.2)	*** (***)	0 (0.0)	0 (0.0)!	0 (0.1)
Maine	*** (***)	*** (***)	21 (2.1)!	25 (2.0)	*** (***)	*** (***)	1 (0.4)!	1 (0.3)
Maryland	34 (3.9)	7 (2.8)!	*** (***)	19 (2.5)	2 (0.9)	0 (0.4)!	*** (***)	1 (0.6)
Massachusetts	54 (8.2)!	4 (1.6)	*** (***)	24 (1.8)	4 (1.7)!	0 (0.0)	*** (***)	1 (0.2)
Michigan	43(10.2)!	4 (1.1)	17 (2.9)!	18 (1.9)	1 (1.5)!	0 (0.1)	0 (0.2)!	0 (0.2)
Minnesota	38 (8.2)!	*** (***)	26 (2.4)!	30 (1.8)	2 (1.5)!	*** (***)	1 (0.5)!	1 (0.4)
Mississippi	*** (***)	4 (1.3)!	5 (1.7)!	6 (0.8)	*** (***)	0 (0.2)!	0 (0.0)!	0 (0.1)
Missouri	31 (6.0)!	9 (2.0)!	16 (3.1)!	19 (1.5)	2 (1.7)!	0 (0.2)!	0 (0.4)!	0 (0.2)
Nebraska	*** (***)	11 (2.9)	28 (3.3)	23 (1.9)	*** (***)	0 (0.0)	0 (0.5)	1 (0.3)
New Hampshire	46 (3.5)! >	*** (***)	27 (4.6)!	22 (1.4)	1 (2.0)!	*** (***)	0 (0.0)!	1 (0.2)
New Jersey	49 (5.7)!	1 (0.9)	*** (***)	26 (2.0) >	2 (1.7)!	0 (0.2)	*** (***)	1 (0.3)
New Mexico	25 (3.8)	4 (2.3)!	6 (3.9)!	10 (1.0)	0 (0.4)	0 (0.0)!	0 (0.0)!	0 (0.1)
New York	40 (5.0)!	2 (1.6)!	22 (2.3)!	19 (2.0)	4 (1.8)!	0 (0.0)!	1 (0.5)!	1 (0.3)
North Carolina	34(12.2)!	5 (2.6)!	9 (1.9)!	11 (1.1)	1 (2.7)!	0 (0.0)!	0 (0.0)!	0 (0.1)
North Dakota	33 (3.3)!	*** (***)	27 (2.0)	26 (2.1)	0 (0.4)!	*** (***)	0 (0.3)	1 (0.4)
Ohio	50 (8.4)!	6 (1.8)	18 (2.8)!	17 (1.6)	2 (1.1)!	0 (0.0)	0 (0.5)!	0 (0.2)
Oklahoma	*** (***)	13 (6.5)!	12 (2.5)!	17 (1.5)	*** (***)	0 (0.0)!	0 (0.3)!	0 (0.2)
Pennsylvania	37 (6.1)!	7 (2.2)!	23 (5.4)!	22 (1.7) >	1 (1.7)!	0 (0.0)!	0 (0.4)!	0 (0.3)
Rhode Island	33 (4.3)	5 (2.3)	*** (***)	15 (1.1)	1 (1.5)	0 (0.0)	*** (***)	0 (0.1)
South Carolina	21 (4.7)!	5 (2.9)!	20 (2.8)!	14 (1.1)	1 (0.9)!	0 (0.0)!	0 (0.6)!	0 (0.1)
Tennessee	28 (4.5)!	13 (3.2)!	9 (1.9)!	11 (1.1)	1 (1.3)!	0 (0.0)!	0 (0.0)!	0 (0.2)
Texas	39 (2.9)! >	5 (1.6)!	17 (4.5)!	17 (1.8)	4 (2.0)!	0 (0.3)!	0 (0.0)!	0 (0.2)
Utah	30 (3.4)	15 (3.3)!	20 (3.6)!	20 (1.3)	1 (0.5)	0 (0.3)!	0 (0.4)!	0 (0.2)
Virginia	32 (3.9)!	7 (2.3)!	10 (3.0)!	16 (1.4)	2 (1.3)!	0 (0.3)!	0 (0.2)!	0 (0.2)
West Virginia	*** (***)	6 (1.7)	8 (1.9)!	9 (1.0)	*** (***)	0 (0.2)	0 (0.0)!	0 (0.0)
Wisconsin	39 (5.7)!	4 (1.7)!	26 (2.4)!	26 (1.6)	2 (1.5)!	0 (0.0)!	1 (0.9)!	1 (0.4)
Wyoming	*** (***)	17 (5.6)!	20 (2.6)!	19 (1.4)	*** (***)	1 (1.2)!	0 (0.4)!	0 (0.2)
TERRITORIES								
Guam	*** (***)	*** (***)	1 (0.9) <	6 (0.6) »	*** (***)	*** (***)	0 (0.0)	0 (0.1)
Virgin Islands	*** (***)	*** (***)	0 (0.5)	0 (0.2)	*** (***)	*** (***)	0 (0.0)	0 (0.0)

TABLE A.9 | Anchor Levels by Type of Community (continued)

PUBLIC SCHOOLS	Grade 8 - 1990							
	Percentage of Students At or Above Level 200				Percentage of Students At or Above Level 250			
	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	99 (1.5)!	92 (2.2)!	95 (2.7)!	95 (1.1)	83 (4.5)!	49 (5.0)!	58 (6.8)!	64 (1.9)
Northeast	98 (2.6)!	87 (9.9)!	*** (***)	98 (1.2)	85 (9.7)!	41 (7.6)!	*** (***)	75 (3.4)
Southeast	*** (***)	*** (***)	91(14.2)!	93 (2.1)	*** (***)	*** (***)	53(25.3)!	55 (3.1)
Central	*** (***)	91 (3.5)!	*** (***)	97 (1.7)	*** (***)	35 (6.0)!	*** (***)	70 (4.2)
West	98 (1.6)!	94 (3.3)!	94 (2.5)!	94 (2.5)	82 (2.0)!	56 (7.9)!	52(12.3)!	61 (3.8)
STATES								
Alabama	97 (1.4)!	92 (2.4)!	91 (2.0)!	94 (1.0)	67 (5.6)!	45 (5.0)!	48 (5.0)!	53 (2.2)
Arizona	99 (0.5)!	92 (2.7)!	93 (3.8)!	95 (1.2)	78 (2.8)!	47 (5.3)!	48 (9.1)!	61 (2.9)
Arkansas	97 (2.5)!	88 (3.3)!	97 (0.8)	96 (0.7)	71 (4.8)!	37 (5.1)!	57 (3.1)	60 (1.6)
California	98 (1.1)!	90 (2.7)!	*** (***)	94 (1.1)	79 (3.0)!	40 (5.7)!	*** (***)	57 (2.2)
Colorado	99 (0.3)	94 (2.9)!	98 (0.9)	97 (0.5)	83 (2.2)	47 (8.5)!	73 (3.9)	67 (2.0)
Connecticut	100 (0.1)	89 (1.5)	*** (***)	97 (0.8)	86 (2.0)	37 (5.1)	*** (***)	73 (1.9)
Delaware	98 (1.5)	*** (***)	95 (1.4)	95 (0.9)	79 (3.4)	*** (***)	61 (2.1)	59 (1.5)
Dist. Columbia	96 (0.9)	80 (1.6)	*** (***)	86 (2.4)	53 (3.6)	20 (1.3)	*** (***)	31 (3.1)
Florida	97 (1.4)!	90 (1.5)	94 (2.2)!	93 (1.2)	73 (3.4)!	39 (2.6)	49 (4.6)!	57 (2.1)
Georgia	99 (0.6)!	94 (2.4)!	93 (1.3)	94 (1.0)	85 (2.3)!	45 (5.4)!	52 (2.8)	58 (2.1)
Hawaii	95 (2.2)	82 (2.8)	*** (***)	91 (0.7)	70 (3.3)	37 (2.4)	*** (***)	52 (1.4)
Idaho	*** (***)	*** (***)	98 (0.6)	99 (0.5)	*** (***)	*** (***)	74 (1.4)	77 (1.6)
Indiana	99 (0.9)!	94 (3.0)!	99 (0.6)	98 (0.5)	82 (3.5)!	40 (7.9)!	70 (3.7)	72 (1.7)
Iowa	100 (0.9)!	97 (1.4)!	100 (0.3)	99 (0.4)	91 (2.9)!	63 (3.7)!	83 (1.5)	80 (1.6)
Kentucky	97 (1.3)!	94 (1.9)!	96 (1.4)	97 (0.6)	69 (4.2)!	45 (4.3)!	55 (3.1)	60 (2.0)
Louisiana	97 (1.8)!	87 (2.9)	88 (2.3)!	94 (0.9)	70 (5.4)!	32 (5.1)	33 (4.6)!	51 (2.5)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	97 (1.1)	85 (3.6)!	93 (2.9)!	95 (0.9)	75 (4.6)	30 (4.8)!	60 (5.9)!	63 (2.6)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	100 (0.0)!	88 (3.0)!	98 (1.1)	98 (0.5)	84 (1.8)!	34 (4.4)!	71 (2.9)	71 (2.2)
Minnesota	99 (0.8)	*** (***)	99 (1.0)	99 (0.4)	80 (1.8)	*** (***)	80 (1.2)	82 (1.8)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	99 (0.6)	*** (***)	99 (0.4)	97 (0.7)	88 (4.0)	*** (***)	83 (2.3)	75 (1.4)
New Hampshire	98 (1.5)	*** (***)	99 (0.9)!	99 (0.3)	80 (2.6)	*** (***)	79 (6.0)!	79 (1.1)
New Jersey	100 (0.3)	90 (2.5)	*** (***)	98 (0.5)	86 (2.2)	34 (3.6)	*** (***)	73 (2.5)
New Mexico	100 (0.5)	96 (2.6)	96 (1.3)	95 (0.6)	90 (3.3)	61 (4.8)	55 (3.3)	55 (1.3)
New York	100 (0.3)!	86 (2.1)	100 (0.0)!	98 (0.6)	82 (3.0)!	36 (3.6)	80 (2.2)!	74 (1.9)
North Carolina	93 (2.9)!	85 (4.9)!	89 (1.3)	93 (0.9)	70 (7.3)!	43(13.7)!	44 (3.3)	52 (1.7)
North Dakota	100 (0.0)	*** (***)	98 (0.6)	99 (0.4)	89 (2.9)	*** (***)	84 (2.6)	87 (2.0)
Ohio	100 (0.6)!	90 (2.2)	98 (0.8)!	98 (0.4)	85 (2.1)!	39 (5.4)	73 (4.3)!	67 (1.7)
Oklahoma	100 (0.4)!	96 (1.9)!	96 (1.3)	98 (0.8)	86 (2.8)!	52 (5.4)!	60 (3.8)	69 (2.2)
Pennsylvania	100 (0.1)!	89 (2.4)!	98 (1.5)!	98 (0.6)	88 (2.5)!	44 (6.5)!	74 (4.1)!	72 (2.0)
Rhode Island	99 (0.6)	90 (1.6)	*** (***)	95 (0.7)	78 (2.4)	44 (2.6)	*** (***)	60 (1.2)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	99 (0.7)!	93 (1.6)!	98 (1.2)!	95 (1.2)	79 (3.1)!	42 (3.3)!	67 (4.7)!	58 (2.1)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	99 (0.4)	91 (3.8)!	93 (2.5)	97 (0.6)	81 (2.8)	42 (6.9)!	47 (3.4)	62 (2.0)
West Virginia	*** (***)	97 (1.7)!	95 (1.3)!	96 (0.7)	*** (***)	61 (3.5)!	57 (2.0)!	56 (1.7)
Wisconsin	99 (0.8)!	91 (2.9)!	100 (0.3)	99 (0.4)	91 (2.7)!	41 (4.5)!	86 (2.5)	79 (1.8)
Wyoming	*** (***)	*** (***)	99 (0.3)	99 (0.3)	*** (***)	*** (***)	82 (1.7)	79 (1.6)
TERRITORIES								
Guam	*** (***)	*** (***)	81 (2.6)	78 (1.3)	*** (***)	*** (***)	35 (2.0)	30 (1.5)
Virgin Islands	*** (***)	*** (***)	63 (2.9)	76 (1.4)	*** (***)	*** (***)	8 (3.7)	15 (1.0)

(xxx) Did not participate in the 1990 Trial State Assessment.

TABLE A.9 | Anchor Levels by Type of Community (continued)

PUBLIC SCHOOLS	Grade 8 - 1990							
	Percentage of Students At or Above Level 300				Percentage of Students At or Above Level 350			
	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	29 (5.7)!	9 (2.7)!	9 (2.5)!	14 (1.2)	2 (1.6)!	0 (0.1)!	0 (0.0)!	0 (0.2)
Northeast	27(10.2)!	9(10.9)!	*** (***)	22 (4.0)	1 (1.3)!	0 (0.0)!	*** (***)	1 (0.6)
Southeast	*** (***)	*** (***)	11 (6.5)!	11 (2.2)	*** (***)	*** (***)	0 (0.0)!	0 (0.3)
Central	*** (***)	1 (1.5)!	*** (***)	15 (1.8)	*** (***)	0 (0.0)!	*** (***)	0 (0.5)
West	32(10.7)!	12 (4.2)!	8 (5.4)!	12 (1.9)	4 ([illegible])!	0 (0.2)!	0 (0.0)!	0 (0.1)
STATES								
Alabama	19 (3.7)!	7 (1.8)!	6 (2.0)!	8 (0.9)	1 (1.0)!	0 (0.4)!	0 (0.0)!	0 (0.1)
Arizona	18 (4.0)!	5 (1.8)!	6 (3.1)!	11 (1.3)	1 (0.8)!	0 (0.0)!	0 (0.0)!	0 (0.2)
Arkansas	20 (4.1)!	4 (2.0)!	6 (1.7)	10 (0.9)	0 (0.3)!	0 (0.0)!	0 (0.3)	0 (0.1)
California	26 (4.7)!	5 (1.5)!	*** (***)	11 (1.3)	1 (0.7)!	0 (0.0)!	*** (***)	0 (0.3)
Colorado	26 (2.2)	4 (2.6)!	14 (2.1)	14 (1.1)	1 (0.4)	0 (0.0)!	0 (0.2)	0 (0.2)
Connecticut	33 (2.1)	4 (1.1)	*** (***)	18 (1.3)	1 (0.6)	0 (0.0)	*** (***)	0 (0.2)
Delaware	34 (2.3)	*** (***)	10 (1.6)	12 (1.0)	1 (0.9)	*** (***)	0 (0.3)	1 (0.4)
Dist. Columbia	13 (2.6)	1 (0.3)	*** (***)	2 (0.8)	2 (1.4)	0 (0.0)	*** (***)	0 (0.0)
Florida	18 (2.1)!	5 (1.2)	7 (1.8)!	12 (1.3)	0 (0.4)!	0 (0.0)	0 (0.0)!	0 (0.2)
Georgia	34 (3.7)!	3 (1.8)!	9 (1.5)	11 (1.2)	3 (1.9)!	0 (0.2)!	0 (0.3)	0 (0.3)
Hawaii	23 (2.7)	4 (1.6)	*** (***)	12 (0.9)	1 (0.9)	0 (0.1)	*** (***)	1 (0.2)
Idaho	*** (***)	*** (***)	14 (1.3)	18 (1.7)	*** (***)	*** (***)	0 (0.2)	0 (0.2)
Indiana	27 (4.5)!	4 (2.4)!	13 (2.5)	16 (1.3)	2 (1.2)!	0 (0.3)!	0 (0.4)	0 (0.2)
Iowa	42 (8.4)!	12 (3.1)!	24 (1.8)	23 (2.0)	3 (1.8)!	0 (0.0)!	1 (0.4)	1 (0.2)
Kentucky	22 (3.2)!	7 (2.6)!	7 (1.0)	10 (1.1)	1 (1.0)!	0 (0.0)!	0 (0.0)	0 (0.2)
Louisiana	16 (3.2)!	3 (0.8)	1 (0.8)!	5 (0.7)	2 (1.4)!	0 (0.0)	0 (0.0)!	0 (0.1)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	29 (3.3)	3 (1.5)!	8 (2.9)!	15 (1.9)	2 (0.9)	0 (0.0)!	0 (0.0)!	0 (0.1)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	29 (3.5)!	1 (1.0)!	14 (3.3)	15 (1.5)	2 (0.7)!	0 (0.0)!	1 (0.5)	0 (0.2)
Minnesota	24 (2.7)	*** (***)	20 (2.4)	24 (1.8)	1 (0.7)	*** (***)	1 (0.7)	1 (0.3)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	31 (5.1)	*** (***)	25 (2.3)	20 (1.7)	1 (0.8)	*** (***)	0 (0.3)	1 (0.4)
New Hampshire	29 (4.2)	*** (***)	30 (5.8)!	19 (1.3)	1 (0.8)	*** (***)	1 (1.2)!	0 (0.2)
New Jersey	34 (3.8)	3 (0.7)	*** (***)	18 (1.6)	1 (0.6)	0 (0.2)	*** (***)	1 (0.2)
New Mexico	32 (8.4)	9 (3.4)	5 (1.2)	10 (1.0)	1 (1.8)	0 (0.0)	0 (0.1)	0 (0.2)
New York	27 (3.1)!	7 (1.7)	24 (4.3)!	16 (1.5)	2 (1.6)!	0 (0.2)	1 (0.7)!	1 (0.3)
North Carolina	23 (3.3)!	7 (3.8)!	4 (1.4)	8 (0.7)	1 (0.5)!	0 (0.0)!	0 (0.0)	0 (0.1)
North Dakota	29 (5.2)	*** (***)	26 (3.2)	26 (1.9	2 (1.9)	*** (***)	0 (0.2)	2 (0.7)
Ohio	24 (2.9)!	5 (1.3)	13 (2.8)!	14 (1.1	1 (0.5)!	0 (0.0)	0 (0.3)!	0 (0.2)
Oklahoma	27 (5.3)!	5 (2.1)!	9 (2.6)	13 (1.4)	0 (0.2)!	0 (0.5)!	0 (0.2)	0 (0.3)
Pennsylvania	36 (3.6)!	7 (2.7)!	13 (3.3)!	15 (1.6)	2 (0.8)!	0 (0.3)!	0 (0.0)!	0 (0.2)
Rhode Island	26 (1.9)	7 (1.8)	*** (***)	12 (0.9)	1 (0.7)	0 (0.4)	*** (***)	0 (0.1)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	23 (3.6)!	7 (1.7)!	13 (1.9)	11 (1.3)	2 (1.0)!	0 (0.1)!	0 (0.7)!	0 (0.1)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	30 (4.5)	6 (3.8)!	8 (2.6)	13 (1.7)	4 (1.3)	0 (0.0)!	0 (0.2)	1 (0.3)
West Virginia	*** (***)	7 (1.4)!	7 (1.5)!	9 (1.0)	*** (***)	0 (0.2)!	0 (0.1)!	0 (0.1)
Wisconsin	36 (6.9)!	5 (1.3)!	22 (2.5)	24 (1.7)	3 (1.5)!	0 (0.4)!	0 (0.5)	1 (0.3)
Wyoming	*** (***)	*** (***)	20 (2.2)	17 (1.0)	*** (***)	*** (***)	0 (0.3)	0 (0.1)
TERRITORIES								
Guam	*** (***)	*** (***)	5 (0.8)	3 (0.4)	*** (***)	*** (***)	0 (0.2)	0 (0.1)
Virgin Islands	*** (***)	*** (***)	0 (0.4)	1 (0.4)	*** (***)	*** (***)	0 (0.0)	0 (0.0)

(xxx) Did not participate in the 1990 Trial State Assessment.

Anchor-Level Results by Parents' Highest Level of Education

The national anchor-level results by parents' highest level of education indicate that the more educated the students' parents, the greater the percentage likely to perform at higher anchor levels on the scale (TABLE A.10). Also, students with parents who have graduated from college showed increased average performance between 1990 and 1992 at all three grade levels. One of the few statistically significant improvements at an anchor level was for these students at grade 8 for Level 300; the other two were at Levels 200 and 250 for fourth graders who did not know their parents' educational background.

For the states, the pattern was less clear (TABLE A.11). For many jurisdictions there was little difference in performance between those students whose parents had some education after high school and those whose parents had graduated from college, or between those whose parents had or had not graduated from high school. However, greater percentages of the former group (those with parents educated beyond high school) tended to perform at successively higher anchor levels than did the latter group (high-school education or less).

The trends across jurisdictions participating in both the 1992 and 1990 assessments at grade 8 reveal few changes. The several places showing gains were all for students whose parents had graduated from college: the District of Columbia at Level 250, and Iowa and Colorado at Level 300.

TABLE A.10 Average Mathematics Proficiency and Anchor Levels by Parents' Highest Level of Education, Grades 4, 8, and 12

	Assessment Years	Percent of Students	Average Proficiency	Percentage of Students At or Above			
				Level 200	Level 250	Level 300	Level 350
Grade 4							
Graduated College	1992	41(1.0)	226(1.0)>	79(1.1)	24(1.4)	1(0.2)	0(0.0)
	1990	35(1.2)	221(1.5)	75(2.3)	19(2.1)	0(0.1)	0(0.0)
Some Education after High School	1992	7(0.4)	224(1.5)	78(2.7)	19(2.3)	0(0.3)	0(0.0)
	1990	8(0.5)	222(2.5)	78(2.7)	19(4.3)	0(0.1)	0(0.0)
Graduated High School	1992	12(0.5)	213(1.5)>	68(2.1)	11(1.7)	0(0.0)	0(0.0)
	1990	15(0.9)	208(1.5)	64(3.2)	7(1.7)	0(0.0)	0(0.0)
Did Not Finish High School	1992	4(0.3)	204(2.6)	57(4.1)	5(2.3)	0(0.0)	0(0.0)
	1990	5(0.4)	202(3.7)	54(4.2)	7(4.6)	0(0.0)	0(0.0)
I Don't Know	1992	35(0.7)	213(0.8)>	67(1.1)>	12(0.9)>	0(0.1)	0(0.0)
	1990	37(1.3)	207(1.2)	61(2.1)	7(0.9)	0(0.3)	0(0.0)
Grade 8							
Graduated College	1992	42(1.3)	280(1.2)>	98(0.4)	80(1.1)	31(1.5)>	1(0.3)
	1990	41(1.8)	274(1.5)	98(0.4)	77(1.7)	23(2.0)	1(0.4)
Some Education after High School	1992	18(0.5)	270(1.1)	98(0.7)	74(1.4)	19(1.1)	0(0.4)
	1990	17(0.8)	268(1.6)	97(1.3)	71(1.7)	15(1.9)	1(0.6)
Graduated High School	1992	24(0.7)	257(1.2)	96(0.9)	58(1.9)	9(0.9)	0(0.0)
	1990	24(1.1)	255(1.6)	95(1.3)	58(2.4)	8(1.3)	0(0.2)
Did Not Finish High School	1992	8(0.5)	248(1.7)>	94(1.3)	46(3.4)	6(1.5)	0(0.2)
	1990	9(0.8)	242(2.0)	93(2.0)	40(3.5)	3(1.0)	0(0.0)
I Don't Know	1992	9(0.4)	251(1.6)>	93(1.0)	50(2.4)	8(1.2)	0(0.1)
	1990	9(0.6)	241(3.2)	86(3.3)	42(3.3)	5(1.6)	0(0.0)
Grade 12							
Graduated College	1992	43(1.1)	310(1.2)>	100(0.1)	95(0.7)	64(1.5)	11(1.0)
	1990	39(1.4)	306(1.6)	100(0.2)	93(0.9)	59(2.0)	9(1.5)
Some Education after High School	1992	26(0.7)	298(1.0)	100(0.0)	92(0.7)	49(1.4)	5(0.7)
	1990	27(1.0)	297(1.2)	100(0.1)	92(1.4)	48(2.1)	4(1.0)
Graduated High School	1992	21(0.8)	287(1.4)	100(0.2)	88(1.2)	35(1.8)	2(0.4)
	1990	24(1.1)	283(2.0)	99(0.5)	82(2.1)	31(2.6)	2(0.5)
Did Not Finish High School	1992	6(0.4)	278(1.7)>	100(0.4)	81(2.4)	22(3.2)	1(0.6)
	1990	8(0.7)	272(2.1)	99(0.8)	76(4.7)	15(2.6)	0(0.7)
I Don't Know	1992	3(0.6)	276(3.0)	99(1.6)	77(4.5)	25(4.8)	1(1.9)
	1990	2(0.3)	268(4.9)	96(3.7)	71(7.6)	19(4.6)	1(0.9)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details). When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 percent or less were rounded to 0 percent.

TABLE A.11 | Anchor Levels by Parents' Highest Level of Education

PUBLIC SCHOOLS	Grade 4 - 1992									
	Percentage of Students At or Above Level 200					Percentage of Students At or Above Level 250				
	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know
NATION	78 (1.2)	77 (3.1)	67 (2.3)	55 (4.4)	66 (1.2)	23 (1.6)	19 (2.8)	11 (1.9)	5 (2.2)	11 (1.0)
Northeast	81 (2.9)	80 (6.0)	70 (6.9)	*** (***)	70 (3.1)	31 (4.3)	26 (6.0)	12 (5.4)	*** (***)	14 (2.2)
Southeast	68 (2.3)	72 (6.2)	55 (4.9)	50 (8.8)	57 (2.5)	15 (2.0)	15 (5.3)	5 (2.6)	4 (2.7)	6 (0.9)
Central	84 (2.8)	86 (6.1)	74 (4.9)	*** (***)	71 (3.4)	25 (2.6)	19 (5.4)	16 (4.1)	*** (***)	13 (1.8)
West	77 (2.1)	70 (5.9)	73 (4.0)	52 (8.1)	65 (2.3)	21 (3.6)	16 (2.8)	11 (4.2)	5 (2.6)	11 (2.2)
STATES										
Alabama	62 (3.0)	72 (3.0)	54 (2.9)	54 (4.1)	53 (3.0)	12 (2.0)	14 (2.3)	6 (1.5)	6 (1.8)	7 (1.2)
Arizona	75 (2.1)	80 (2.7)	63 (3.6)	54 (6.3)	62 (2.0)	17 (1.4)	20 (3.0)	9 (2.1)	4 (2.0)	8 (1.2)
Arkansas	66 (2.1)	72 (3.2)	62 (3.0)	48 (4.0)	60 (1.8)	13 (1.9)	12 (2.4)	7 (1.4)	3 (1.9)	6 (0.9)
California	69 (2.7)	72 (4.1)	52 (4.1)	43 (6.3)	55 (2.2)	17 (1.6)	16 (2.7)	6 (2.1)	4 (1.8)	9 (1.4)
Colorado	83 (1.5)	84 (2.5)	69 (3.0)	50 (5.0)	67 (2.0)	24 (1.5)	21 (3.2)	8 (2.0)	4 (2.0)	11 (1.3)
Connecticut	88 (1.3)	78 (3.9)	77 (3.4)	57 (6.8)	73 (2.2)	32 (2.0)	22 (3.9)	13 (2.7)	7 (3.3)	18 (1.7)
Delaware	75 (2.3)	76 (3.9)	67 (2.5)	42 (5.3)	65 (1.9)	25 (2.0)	13 (4.9)	10 (2.0)	2 (2.4)	9 (1.5)
Dist. Columbia	42 (1.9)	44 (4.2)	32 (3.2)	31 (4.7)	32 (2.2)	8 (0.7)	6 (2.0)	2 (0.8)	0 (1.2)	2 (0.6)
Florida	73 (3.0)	78 (3.4)	57 (3.7)	49 (5.4)	62 (2.1)	18 (2.2)	21 (3.3)	7 (1.7)	3 (2.3)	8 (1.0)
Georgia	73 (2.0)	78 (3.0)	59 (2.7)	51 (4.4)	64 (2.7)	22 (2.1)	18 (2.8)	7 (1.8)	5 (2.4)	10 (1.3)
Hawaii	71 (2.1)	75 (4.1)	54 (2.8)	46 (6.8)	64 (2.0)	18 (1.6)	18 (3.4)	8 (1.6)	6 (3.4)	12 (1.1)
Idaho	83 (1.7)	85 (2.8)	72 (3.1)	51 (6.6)	72 (2.2)	20 (2.1)	20 (3.8)	8 (1.7)	3 (1.7)	10 (1.0)
Indiana	81 (1.7)	86 (3.2)	71 (2.5)	63 (4.7)	70 (1.9)	22 (2.0)	22 (3.3)	11 (1.7)	5 (2.7)	9 (1.1)
Iowa	89 (1.3)	90 (2.1)	81 (2.7)	69 (4.6)	79 (1.6)	32 (1.7)	31 (3.3)	16 (2.5)	8 (3.2)	18 (1.7)
Kentucky	75 (2.3)	77 (3.3)	63 (3.1)	53 (3.7)	64 (2.1)	19 (1.9)	18 (3.2)	9 (1.3)	5 (1.4)	7 (1.1)
Louisiana	59 (2.3)	70 (3.4)	46 (3.2)	42 (6.0)	52 (2.6)	10 (1.7)	12 (3.6)	5 (1.5)	2 (1.5)	5 (0.9)
Maine	93 (1.2)	95 (1.9)	82 (2.8)	75 (6.3)	81 (2.1)	37 (2.2)	37 (4.3)	18 (2.8)	8 (4.4)	17 (1.9)
Maryland	75 (1.7)	79 (3.3)	56 (3.8)	51 (5.7)	62 (2.1)	24 (1.8)	24 (3.2)	11 (1.7)	4 (1.7)	12 (1.4)
Massachusetts	87 (1.2)	86 (2.9)	74 (3.4)	41 (7.2)	73 (2.1)	31 (2.0)	25 (4.4)	14 (2.3)	3 (2.3)	13 (1.4)
Michigan	79 (2.3)	80 (2.8)	70 (3.3)	57 (8.1)	67 (2.3)	27 (2.3)	19 (3.0)	7 (1.5)	5 (2.4)	12 (2.0)
Minnesota	88 (1.4)	85 (3.9)	74 (2.6)	*** (***)	78 (2.1)	34 (2.0)	27 (3.5)	16 (3.1)	*** (***)	19 (1.3)
Mississippi	55 (2.4)	65 (4.0)	46 (3.2)	40 (4.0)	47 (2.3)	8 (1.0)	9 (2.8)	6 (1.2)	2 (1.0)	4 (0.7)
Missouri	82 (1.7)	84 (2.6)	73 (3.2)	64 (6.0)	72 (2.1)	25 (2.0)	21 (3.4)	14 (1.9)	8 (2.7)	11 (1.6)
Nebraska	83 (1.9)	85 (3.0)	75 (3.6)	*** (***)	74 (1.9)	26 (2.6)	26 (3.2)	18 (3.0)	*** (***)	14 (1.6)
New Hampshire	90 (1.3)	90 (2.8)	79 (3.3)	64 (5.6)	79 (1.9)	31 (2.4)	25 (4.4)	15 (2.5)	12 (4.3)	17 (1.8)
New Jersey	86 (1.7)	85 (3.4)	75 (3.3)	66 (7.2)	72 (2.9)	32 (2.3)	25 (5.3)	13 (2.8)	6 (5.2)	14 (1.9)
New Mexico	75 (3.2)	80 (3.9)	59 (3.7)	52 (5.7)	59 (2.5)	18 (2.1)	14 (4.7)	8 (1.6)	4 (1.6)	6 (1.1)
New York	81 (1.7)	80 (3.1)	66 (3.7)	65 (5.5)	63 (2.3)	24 (2.5)	20 (4.9)	7 (1.7)	7 (3.9)	10 (1.5)
North Carolina	70 (2.2)	75 (3.7)	55 (3.0)	52 (4.8)	60 (2.2)	17 (1.4)	17 (2.4)	6 (1.3)	4 (2.2)	7 (1.0)
North Dakota	89 (0.8)	90 (3.9)	80 (2.9)	*** (***)	81 (1.9)	27 (1.8)	28 (3.7)	17 (3.1)	*** (***)	13 (1.7)
Ohio	80 (1.8)	77 (3.6)	71 (3.0)	58 (4.8)	64 (2.2)	24 (2.1)	14 (2.3)	10 (2.1)	6 (2.5)	9 (1.3)
Oklahoma	81 (2.0)	85 (2.9)	73 (3.3)	68 (5.9)	71 (1.9)	18 (1.9)	17 (2.5)	8 (1.9)	5 (3.1)	9 (1.3)
Pennsylvania	84 (2.0)	87 (2.1)	77 (2.5)	66 (5.3)	69 (2.7)	28 (2.4)	35 (3.6)	15 (2.2)	7 (2.4)	13 (1.6)
Rhode Island	79 (2.2)	78 (3.3)	63 (4.9)	52 (5.2)	61 (2.5)	19 (2.0)	13 (3.2)	5 (1.5)	2 (1.4)	9 (1.2)
South Carolina	71 (2.0)	75 (3.1)	57 (3.6)	55 (4.4)	56 (2.1)	20 (1.7)	14 (2.6)	5 (1.0)	6 (2.5)	7 (1.6)
Tennessee	70 (2.7)	68 (3.5)	57 (2.7)	54 (4.7)	58 (2.4)	17 (2.1)	10 (2.1)	4 (1.3)	2 (1.0)	5 (1.0)
Texas	78 (2.3)	82 (3.9)	67 (3.9)	67 (4.4)	66 (2.2)	20 (2.6)	20 (3.7)	10 (2.6)	8 (2.4)	11 (1.4)
Utah	85 (1.9)	85 (2.8)	72 (3.5)	61 (6.6)	73 (1.8)	25 (1.8)	20 (3.4)	12 (2.2)	6 (2.8)	12 (1.1)
Virginia	82 (1.7)	76 (3.2)	64 (4.5)	57 (5.0)	66 (2.3)	27 (2.4)	14 (2.4)	8 (1.8)	3 (1.7)	12 (1.5)
West Virginia	76 (2.1)	80 (3.0)	64 (2.6)	52 (5.6)	63 (2.4)	19 (2.0)	16 (2.5)	8 (1.4)	4 (1.4)	8 (1.0)
Wisconsin	87 (1.4)	91 (2.2)	80 (3.1)	75 (4.9)	78 (1.9)	31 (2.8)	35 (4.6)	19 (2.3)	13 (5.0)	15 (1.5)
Wyoming	86 (1.6)	91 (2.2)	79 (2.5)	73 (6.4)	76 (2.0)	23 (2.1)	25 (3.2)	14 (2.3)	7 (2.5)	11 (1.2)
TERRITORY										
Guam	40 (2.1)	60 (4.5)	35 (4.1)	29 (5.2)	41 (1.9)	4 (1.0)	13 (3.4)	2 (1.2)	3 (2.4)	4 (0.7)

The standard errors of the estimated percentages appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. ***Sample size insufficient to permit reliable estimate. There were fewer than 62 students.

TABLE A.11 | Anchor Levels by Parents' Highest Level of Education (continued)

PUBLIC SCHOOLS	Grade 4 - 1992									
	Percentage of Students At or Above Level 300					Percentage of Students At or Above Level 350				
	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know
NATION	1 (0.2)	0 (0.4)	0 (0.0)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Northeast	1 (0.7)	1 (1.8)	0 (0.0)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)
Southeast	1 (0.6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Central	0 (0.3)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)
West	1 (0.8)	0 (0.7)	0 (0.0)	0 (0.0)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
STATES										
Alabama	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Arizona	0 (0.2)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Arkansas	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
California	0 (0.2)	0 (0.7)	0 (0.0)	0 (0.0)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Colorado	0 (0.2)	0 (0.7)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Connecticut	1 (0.5)	0 (0.6)	0 (0.3)	1 (0.8)	1 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Delaware	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Dist. Columbia	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Florida	0 (0.4)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Georgia	0 (0.2)	0 (0.6)	0 (0.0)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Hawaii	0 (0.2)	0 (0.4)	0 (0.1)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Idaho	0 (0.2)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Indiana	0 (0.2)	0 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Iowa	1 (0.3)	0 (0.4)	0 (0.2)	0 (0.0)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Kentucky	0 (0.1)	0 (0.7)	0 (0.0)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Louisiana	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Maine	1 (0.3)	0 (0.4)	0 (0.3)	0 (0.0)	1 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.1)
Maryland	1 (0.4)	0 (0.3)	0 (0.3)	0 (0.0)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Massachusetts	1 (0.4)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Michigan	1 (0.4)	0 (0.5)	0 (0.0)	0 (0.0)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Minnesota	1 (0.3)	0 (0.0)	0 (0.2)	*** (***)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)
Mississippi	0 (0.1)	0 (0.0)	0 (0.2)	0 (0.2)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Missouri	0 (0.3)	0 (0.5)	0 (0.1)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Nebraska	1 (0.3)	1 (0.7)	0 (0.6)	*** (***)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)
New Hampshire	1 (0.4)	0 (0.5)	0 (0.0)	0 (0.0)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
New Jersey	1 (0.3)	1 (0.6)	0 (0.5)	0 (0.0)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
New Mexico	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
New York	1 (0.3)	0 (0.3)	0 (0.2)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
North Carolina	0 (0.2)	0 (0.5)	0 (0.0)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
North Dakota	0 (0.3)	0 (0.0)	0 (0.4)	*** (***)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	*** (***)	0 (0.0)
Ohio	0 (0.2)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Oklahoma	0 (0.2)	0 (0.5)	0 (0.0)	0 (0.0)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Pennsylvania	0 (0.4)	0 (0.7)	0 (0.0)	0 (0.0)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Rhode Island	0 (0.2)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
South Carolina	0 (0.2)	0 (0.3)	0 (0.1)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Tennessee	0 (0.1)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Texas	0 (0.2)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Utah	1 (0.3)	0 (0.5)	0 (0.0)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Virginia	1 (0.5)	0 (0.4)	0 (0.3)	0 (0.0)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
West Virginia	0 (0.2)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Wisconsin	1 (0.3)	0 (0.2)	0 (0.3)	3 (4.9)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Wyoming	0 (0.2)	0 (0.0)	0 (0.2)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TERRITORY										
Guam	0 (0.0)	0 (0.5)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent.

TABLE A.11 | Anchor Levels by Parents' Highest Level of Education (continued)

PUBLIC SCHOOLS	Grade 8 - 1992									
	Percentage of Students At or Above Level 200					Percentage of Students At or Above Level 250				
	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know
NATION	98 (0.5)	98 (0.8)	95 (1.0)	94 (1.3)	93 (1.2)	78 (1.3)	73 (1.5)	57 (2.1)	46 (3.5)	49 (2.6)
Northeast	98 (1.0)	96 (2.3)	96 (1.8)	94 (3.8)	95 (1.8)	76 (3.7)	70 (3.8)	60 (6.8)	41 (6.2)	48 (6.4)
Southeast	97 (1.1)	96 (1.8)	94 (2.3)	96 (2.9)	90 (3.5)	71 (2.9)	67 (2.7)	47 (2.2)	43 (7.0)	47 (6.4)
Central	99 (0.6)	98 (1.1)	98 (1.0)	*** (***)	96 (2.5)	84 (2.3)	76 (3.3)	70 (3.6)	*** (***)	59 (6.7)
West	98 (0.9)	99 (0.6)	94 (1.8)	93 (1.9)	92 (1.8)	80 (2.3)	77 (3.2)	53 (4.4)	48 (4.4)	46 (3.9)
STATES										
Alabama	95 (1.3)	96 (1.4)	90 (1.6)	91 (2.6)	89 (3.4)	61 (2.6)	60 (2.8)	44 (2.9)	36 (3.2)	35 (4.6)
Arizona	99 (0.5)	98 (0.7)	97 (1.0)	93 (1.8)	93 (1.8)	80 (1.9)	76 (2.2)	58 (2.8)	45 (4.8)	48 (3.5)
Arkansas	95 (0.9)	97 (1.2)	92 (1.3)	92 (2.4)	92 (2.3)	67 (2.6)	67 (2.4)	50 (2.7)	45 (4.4)	46 (4.0)
California	96 (0.7)	96 (1.1)	93 (1.2)	90 (2.2)	84 (2.6)	75 (2.0)	69 (2.6)	52 (3.2)	38 (4.1)	40 (3.4)
Colorado	99 (0.4)	99 (0.7)	97 (0.9)	95 (1.6)	94 (2.0)	84 (1.3)	82 (1.6)	65 (2.4)	52 (3.9)	54 (4.3)
Connecticut	99 (0.4)	99 (0.8)	96 (1.3)	92 (3.6)	93 (2.2)	87 (1.3)	77 (2.3)	63 (2.8)	44 (5.0)	51 (3.8)
Delaware	98 (0.6)	98 (1.1)	94 (1.5)	90 (4.3)	91 (3.0)	74 (1.3)	73 (3.7)	51 (2.7)	52 (6.6)	46 (4.6)
Dist. Columbia	87 (1.6)	88 (2.0)	77 (2.2)	77 (5.1)	81 (3.1)	44 (1.9) >	39 (2.6)	21 (2.0)	23 (4.9)	25 (3.3)
Florida	96 (0.8)	98 (1.0)	93 (1.5)	89 (2.4)	88 (3.1)	69 (2.1)	70 (3.0)	52 (2.7)	45 (4.3)	46 (4.7)
Georgia	97 (0.8)	97 (1.1)	95 (1.3)	91 (1.8)	93 (2.6)	72 (2.2)	69 (2.3)	49 (2.2)	44 (3.3)	42 (4.4)
Hawaii	96 (0.7)	97 (1.1)	91 (1.7)	88 (4.1)	89 (1.8)	67 (1.9)	69 (3.1)	46 (2.3)	43 (5.6)	45 (2.9)
Idaho	100 (0.2)	99 (0.4)	99 (0.6)	97 (2.1)	96 (1.7)	86 (1.1)	84 (1.5)	75 (2.6)	54 (4.2)	56 (4.8)
Indiana	99 (0.4)	99 (0.5)	97 (0.9)	95 (1.8)	93 (2.7)	83 (1.8)	80 (2.0)	65 (2.2)	50 (4.6)	50 (5.0)
Iowa	100 (0.2)	100 (0.2)	99 (0.3)	98 (1.8)	99 (0.9)	91 (1.1)	90 (1.8)	80 (1.9)	69 (5.1)	71 (4.9)
Kentucky	99 (0.4)	97 (1.6)	95 (0.9)	94 (1.5)	89 (2.9)	79 (1.6)	73 (2.2)	58 (2.5)	44 (3.2)	43 (4.2)
Louisiana	93 (1.5)	97 (0.9)	91 (1.2)	89 (2.6)	88 (4.4)	58 (2.9)	64 (3.1)	40 (2.4)	34 (4.3)	34 (4.2)
Maine	100 (0.4)	100 (0.3)	98 (0.9)	98 (2.1)	100 (0.8)	91 (1.1)	87 (1.9)	74 (1.7)	62 (4.9)	72 (5.0)
Maryland	97 (0.7)	96 (1.2)	93 (1.7)	89 (4.2)	89 (3.2)	77 (1.7)	69 (2.5)	51 (2.6)	37 (4.5)	45 (5.0)
Massachusetts	99 (0.6)	99 (0.5)	97 (0.9)	95 (2.0)	94 (2.2)	84 (1.5)	77 (2.9)	65 (2.6)	50 (6.1)	46 (5.0)
Michigan	98 (0.6)	98 (0.9)	94 (1.1)	94 (2.3)	92 (2.6)	77 (2.1)	77 (2.5)	60 (2.2)	50 (4.3)	50 (5.3)
Minnesota	100 (0.2)	100 (0.6)	99 (0.5)	96 (3.0)	99 (1.2)	90 (1.1)	87 (1.9)	74 (2.5)	58 (8.1)	69 (4.8)
Mississippi	93 (1.0)	96 (1.4)	88 (1.8)	86 (2.3)	82 (3.5)	54 (1.9)	58 (3.0)	35 (2.5)	31 (2.8)	29 (3.9)
Missouri	98 (0.6)	99 (0.6)	98 (0.5)	97 (1.8)	94 (2.6)	82 (1.8)	80 (1.9)	67 (2.7)	54 (4.7)	55 (4.5)
Nebraska	99 (0.3)	100 (0.1)	98 (0.6)	92 (4.6)	93 (3.0)	88 (1.2)	86 (2.1)	74 (2.7)	50 (6.9)	63 (5.2)
New Hampshire	100 (0.2)	100 (0.5)	99 (0.4)	97 (2.0)	97 (1.7)	90 (1.1)	88 (1.8)	73 (1.8)	67 (4.7)	68 (3.7)
New Jersey	99 (0.5)	99 (0.5)	96 (1.2)	94 (2.7)	90 (3.5)	83 (2.2)	79 (2.4)	62 (3.3)	54 (5.6)	50 (4.6)
New Mexico	98 (0.5)	98 (0.6)	95 (1.3)	93 (2.2)	94 (1.6)	77 (1.9)	69 (2.3)	49 (2.1)	42 (3.9)	42 (4.0)
New York	96 (0.9)	97 (1.4)	93 (1.7)	87 (4.7)	85 (3.2)	79 (1.8)	76 (3.3)	59 (3.1)	42 (5.6)	40 (5.5)
North Carolina	97 (0.6)	98 (0.7)	92 (1.4)	90 (2.1)	88 (3.5)	73 (1.5)	69 (2.1)	46 (2.2)	40 (3.1)	39 (4.6)
North Dakota	100 (0.1)	100 (0.4)	100 (0.2)	100 (1.0)	99 (1.8)	92 (0.9)	89 (2.0)	78 (2.8)	61 (7.5)	81 (4.5)
Ohio	98 (0.6)	99 (0.8)	96 (0.9)	92 (2.5)	92 (3.2)	80 (1.7)	76 (2.3)	64 (3.0)	44 (5.4)	52 (7.6)
Oklahoma	99 (0.4)	99 (0.5)	96 (0.9)	95 (2.3)	93 (4.7)	82 (1.9)	77 (2.2)	61 (2.7)	58 (4.6)	54 (6.0)
Pennsylvania	99 (0.6)	99 (0.6)	97 (1.0)	95 (1.8)	93 (3.1)	83 (1.5)	79 (2.3)	66 (2.3)	52 (4.6)	51 (6.0)
Rhode Island	99 (0.4)	99 (0.8)	97 (1.1)	91 (2.6)	88 (2.6)	80 (2.0)	78 (2.5)	59 (2.7)	40 (4.2)	37 (4.3)
South Carolina	98 (0.9)	99 (0.7)	94 (1.3)	94 (2.1)	91 (2.5)	70 (2.4)	73 (2.7)	47 (2.3)	47 (3.5)	47 (4.6)
Tennessee	96 (1.0)	98 (0.9)	95 (1.1)	93 (1.6)	91 (3.9)	69 (2.3)	69 (2.5)	51 (2.6)	44 (4.5)	41 (5.7)
Texas	98 (0.6)	98 (0.7)	96 (0.9)	93 (1.4)	90 (2.0)	79 (2.2)	75 (2.2)	55 (2.8)	48 (2.9)	41 (3.6)
Utah	99 (0.3)	100 (0.2)	96 (1.1)	97 (2.7)	97 (1.3)	83 (1.2)	84 (1.5)	63 (3.4)	55 (6.0)	57 (5.1)
Virginia	99 (0.4)	99 (0.6)	94 (0.9)	95 (1.8)	94 (1.5)	82 (1.5)	75 (2.4)	52 (2.6)	47 (4.2)	55 (4.2)
West Virginia	99 (0.3)	99 (0.4)	96 (1.1)	94 (1.4)	91 (2.4)	74 (2.5)	76 (2.3)	52 (2.0)	41 (2.7)	33 (4.4)
Wisconsin	99 (0.4)	99 (0.3)	98 (0.6)	95 (2.7)	94 (2.4)	87 (1.7)	87 (1.7)	75 (2.7)	55 (5.8)	57 (6.4)
Wyoming	99 (0.3)	100 (0.4)	99 (0.6)	97 (1.7)	98 (1.2)	85 (1.1)	84 (2.2)	73 (2.1)	61 (5.4)	64 (5.1)
TERRITORIES										
Guam	84 (1.9)	88 (2.7)	79 (2.5)	76 (4.4)	75 (2.1)	48 (3.1)	45 (3.6)	28 (2.3)	21 (3.4)	24 (2.8)
Virgin Islands	79 (3.1)	87 (2.6)	76 (3.5)	75 (4.2)	70 (2.6)	20 (2.2)	28 (4.5)	17 (2.1)	15 (2.8)	14 (2.3)

When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. »The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

TABLE A.11 | Anchor Levels by Parents' Highest Level of Education (continued)

PUBLIC SCHOOLS	Grade 8 - 1992									
	Percentage of Students At or Above Level 300					Percentage of Students At or Above Level 350				
	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know
NATION	30 (1.7)	18 (1.3)	9 (1.0)	6 (1.6)	8 (1.2)	1 (0.3)	0 (0.4)	0 (0.0)	0 (0.2)	0 (0.1)
Northeast	38 (5.0)	16 (4.4)	9 (2.4)	8 (5.4)	7 (3.3)	2 (1.2)	0 (1.0)	0 (0.0)	0 (0.0)	0 (0.0)
Southeast	20 (2.0)	14 (2.1)	6 (1.0)	3 (2.0)	7 (2.3)	0 (0.3)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.4)
Central	33 (3.9)	21 (2.2)	12 (2.4)	*** (***)	9 (3.9)	1 (0.5)	1 (0.7)	0 (0.1)	*** (***)	0 (0.0)
West	29 (3.0)	22 (3.3)	8 (1.9)	5 (2.9)	8 (2.3)	2 (0.8)	0 (0.8)	0 (0.1)	0 (0.0)	0 (0.3)
STATES										
Alabama	17 (1.9)	11 (2.4)	5 (0.9)	2 (1.3)	2 (1.5)	0 (0.2)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)
Arizona	25 (1.8)	14 (2.0)	6 (1.6)	3 (1.3)	4 (1.7)	0 (0.3)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.5)
Arkansas	15 (1.8)	12 (1.7)	5 (0.9)	5 (1.4)	4 (1.8)	0 (0.3)	0 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)
California	26 (2.2)	15 (3.0)	7 (1.6)	3 (1.2)	5 (1.9)	1 (0.6)	0 (0.3)	0 (0.2)	0 (0.4)	0 (0.0)
Colorado	30 (1.5) >	20 (2.7)	9 (1.5)	4 (1.7)	6 (1.9)	1 (0.4)	0 (0.3)	0 (0.1)	0 (0.0)	0 (0.0)
Connecticut	38 (1.4)	19 (3.2)	11 (1.3)	4 (1.6)	8 (2.1)	1 (0.3)	0 (0.1)	0 (0.2)	0 (0.0)	0 (0.0)
Delaware	24 (2.1)	15 (3.1)	6 (0.9)	5 (2.6)	5 (2.3)	1 (0.4)	1 (0.7)	0 (0.1)	0 (0.5)	0 (0.0)
Dist. Columbia	9 (1.6)	2 (1.3)	1 (0.8)	2 (1.3)	2 (1.2)	1 (0.6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Florida	21 (1.9)	15 (1.9)	7 (1.4)	5 (1.9)	5 (1.4)	1 (0.5)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.4)
Georgia	21 (2.4)	13 (2.0)	5 (1.1)	3 (1.2)	4 (1.6)	1 (0.6)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)
Hawaii	20 (1.7)	17 (2.2)	5 (0.9)	6 (2.5)	7 (1.5)	1 (0.4)	0 (0.3)	0 (0.3)	0 (0.0)	0 (0.2)
Idaho	27 (1.6)	22 (2.1)	12 (1.6)	6 (1.9)	7 (2.5)	1 (0.3)	0 (0.2)	0 (0.3)	0 (0.0)	0 (0.0)
Indiana	33 (2.1)	21 (2.1)	8 (1.2)	4 (1.5)	5 (2.0)	2 (0.7)	0 (0.4)	0 (0.1)	0 (0.0)	0 (0.3)
Iowa	40 (1.7) >	32 (2.3)	16 (1.5)	5 (2.5)	11 (2.9)	1 (0.6)	0 (0.4)	0 (0.2)	0 (0.0)	0 (0.0)
Kentucky	27 (2.7)	15 (1.9)	6 (1.0)	3 (1.0)	4 (2.1)	1 (0.7)	0 (0.3)	0 (0.1)	0 (0.0)	0 (0.0)
Louisiana	12 (1.9)	8 (1.5)	3 (0.8)	1 (0.7)	3 (1.5)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Maine	35 (2.4)	25 (2.3)	12 (1.8)	7 (2.9)	12 (3.2)	1 (0.5)	1 (0.6)	0 (0.4)	0 (0.0)	0 (0.2)
Maryland	30 (2.1)	18 (2.5)	7 (1.2)	6 (2.6)	5 (1.9)	2 (0.8)	1 (0.6)	0 (0.1)	0 (0.0)	0 (0.0)
Massachusetts	34 (2.0)	18 (2.6)	10 (1.4)	3 (1.9)	5 (3.1)	1 (0.4)	0 (0.4)	0 (0.1)	0 (0.0)	0 (0.0)
Michigan	27 (2.7)	18 (1.9)	9 (1.3)	4 (1.6)	7 (2.6)	1 (0.5)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.2)
Minnesota	38 (1.7)	30 (2.8)	16 (2.0)	6 (1.7)	17 (3.7)	2 (0.6)	1 (0.5)	0 (0.4)	0 (0.0)	0 (0.2)
Mississippi	10 (1.3)	7 (1.7)	3 (0.8)	1 (0.7)	3 (1.7)	0 (0.1)	0 (0.1)	0 (0.1)	0 (0.0)	0 (0.0)
Missouri	28 (2.5)	20 (2.1)	11 (1.5)	5 (1.9)	5 (2.4)	1 (0.4)	0 (0.3)	0 (0.2)	0 (0.0)	0 (0.0)
Nebraska	35 (2.0)	25 (2.6)	13 (2.3)	4 (1.8)	7 (2.0)	1 (0.4)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)
New Hampshire	35 (2.0)	22 (2.6)	11 (1.5)	4 (2.3)	9 (2.3)	1 (0.4)	0 (0.4)	0 (0.2)	0 (0.0)	0 (0.2)
New Jersey	34 (1.9)	22 (2.3)	9 (2.2)	5 (2.5)	9 (3.1)	2 (0.6)	0 (0.4)	0 (0.0)	0 (0.4)	0 (0.5)
New Mexico	19 (1.7)	11 (1.5)	4 (0.8)	4 (1.5)	3 (1.7)	0 (0.2)	0 (0.3)	0 (0.2)	0 (0.0)	0 (0.0)
New York	28 (1.7)	19 (2.2)	10 (1.5)	4 (1.6)	6 (2.0)	2 (0.5)	1 (0.4)	0 (0.3)	1 (0.5)	0 (0.5)
North Carolina	20 (1.9)	13 (1.7)	4 (0.8)	2 (1.3)	4 (1.6)	0 (0.2)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.6)
North Dakota	35 (1.9)	26 (3.1)	15 (2.3)	8 (4.1)	15 (3.4)	1 (0.4)	0 (0.4)	0 (0.1)	0 (0.0)	0 (0.5)
Ohio	29 (2.2)	18 (2.0)	8 (1.3)	1 (1.0)	4 (2.5)	1 (0.5)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)
Oklahoma	23 (1.8)	18 (2.6)	8 (1.2)	6 (3.2)	8 (2.7)	1 (0.4)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)
Pennsylvania	31 (2.1)	20 (2.1)	11 (1.5)	6 (2.1)	8 (2.7)	1 (0.3)	0 (0.3)	0 (0.4)	0 (0.0)	0 (0.0)
Rhode Island	24 (1.7)	14 (2.3)	6 (1.4)	6 (1.7)	1 (1.1)	1 (0.5)	0 (0.2)	0 (0.1)	0 (0.6)	0 (0.0)
South Carolina	24 (2.2)	15 (2.0)	5 (0.8)	5 (1.4)	7 (2.4)	1 (0.4)	0 (0.1)	0 (0.0)	0 (0.2)	0 (0.0)
Tennessee	17 (2.1)	13 (1.9)	6 (0.9)	3 (1.2)	6 (2.0)	0 (0.4)	0 (0.1)	0 (0.1)	0 (0.0)	0 (0.0)
Texas	32 (2.4)	20 (2.3)	6 (1.5)	5 (1.2)	5 (1.9)	2 (0.8)	0 (0.2)	0 (0.2)	0 (0.3)	0 (0.2)
Utah	26 (1.4)	22 (2.4)	9 (1.7)	5 (2.8)	12 (2.5)	1 (0.3)	0 (0.3)	0 (0.0)	0 (0.6)	0 (0.6)
Virginia	32 (2.0)	16 (1.8)	7 (1.0)	4 (1.7)	5 (1.8)	2 (0.5)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.2)
West Virginia	16 (1.8)	13 (2.1)	4 (0.9)	3 (0.8)	2 (1.0)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Wisconsin	36 (1.9)	29 (2.1)	15 (1.7)	8 (2.5)	10 (2.6)	2 (0.6)	0 (0.7)	0 (0.1)	0 (0.3)	0 (0.4)
Wyoming	27 (1.4)	21 (2.3)	10 (1.8)	6 (2.5)	9 (2.9)	1 (0.2)	0 (0.6)	0 (0.0)	0 (0.0)	0 (0.3)
TERRITORIES										
Guam	10 (1.7)	6 (2.0)	3 (0.7)	3 (1.6)	3 (1.2)	0 (0.3)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.3)
Virgin Islands	2 (1.0)	1 (1.2)	0 (0.3)	0 (0.0)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent.

TABLE A.11 | Anchor Levels by Parents' Highest Level of Education (continued)

PUBLIC SCHOOLS	Grade 8 - 1990									
	Percentage of Students At or Above Level 200					Percentage of Students At or Above Level 250				
	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know
NATION	97 (0.5)	97 (1.4)	95 (1.3)	93 (2.1)	85 (3.4)	76 (1.8)	70 (1.8)	57 (2.4)	39 (3.6)	40 (3.4)
Northeast	98 (1.1)	96 (2.2)	98 (1.7)	*** (***)	*** (***)	85 (4.0)	71 (4.6)	62 (4.7)	*** (***)	*** (***)
Southeast	97 (1.5)	95 (1.9)	91 (4.0)	91 (4.3)	83 (6.0)	73 (3.0)	66 (3.5)	46 (7.1)	33 (6.2)	29 (7.4)
Central	97 (1.3)	98 (2.2)	98 (1.0)	*** (***)	*** (***)	76 (3.9)	70 (4.1)	68 (3.1)	*** (***)	*** (***)
West	97 (0.9)	97 (3.1)	94 (2.2)	93 (3.7)	84 (5.7)	73 (3.1)	74 (3.2)	52 (3.9)	44 (4.9)	43 (5.3)
STATES										
Alabama	96 (0.7)	97 (1.1)	92 (1.5)	89 (2.3)	90 (2.7)	63 (2.4)	64 (2.7)	46 (2.5)	37 (3.5)	38 (3.8)
Arizona	98 (0.6)	97 (0.9)	95 (1.2)	89 (2.7)	90 (2.3)	76 (1.9)	70 (2.7)	51 (2.7)	39 (3.3)	41 (3.0)
Arkansas	97 (0.9)	98 (0.7)	95 (1.0)	93 (1.7)	89 (3.0)	69 (1.7)	72 (3.0)	51 (2.0)	44 (2.8)	33 (3.8)
California	97 (1.0)	96 (1.4)	91 (1.6)	90 (2.6)	86 (2.0)	73 (2.1)	66 (2.9)	47 (2.7)	38 (4.0)	36 (3.4)
Colorado	99 (0.3)	99 (0.5)	96 (1.1)	90 (2.5)	91 (2.1)	82 (1.6)	77 (1.9)	55 (2.3)	42 (4.7)	52 (4.1)
Connecticut	99 (0.3)	97 (0.9)	94 (1.3)	93 (3.7)	92 (2.7)	84 (1.2)	74 (2.5)	59 (3.2)	40 (4.9)	49 (5.4)
Delaware	98 (0.8)	98 (0.8)	93 (1.5)	93 (3.4)	91 (3.2)	74 (1.8)	67 (3.7)	51 (2.4)	42 (4.8)	44 (5.5)
Dist. Columbia	87 (1.6)	91 (2.0)	79 (2.1)	81 (4.0)	77 (3.5)	34 (2.2)	33 (3.4)	20 (1.9)	20 (3.6)	14 (3.3)
Florida	96 (0.7)	97 (1.1)	92 (1.6)	85 (2.9)	89 (2.8)	68 (1.8)	66 (2.7)	44 (2.2)	38 (3.8)	40 (3.9)
Georgia	97 (0.6)	97 (0.9)	93 (1.3)	93 (1.6)	87 (2.7)	73 (2.1)	71 (2.7)	47 (2.6)	44 (3.6)	37 (4.4)
Hawaii	93 (1.0)	96 (1.1)	88 (1.5)	82 (4.5)	83 (2.1)	62 (1.8)	62 (2.9)	40 (1.7)	35 (4.7)	35 (2.9)
Idaho	99 (0.3)	100 (0.5)	98 (0.5)	97 (2.0)	94 (3.9)	85 (1.5)	82 (2.0)	66 (2.4)	51 (4.6)	55 (5.0)
Indiana	99 (0.4)	99 (0.6)	98 (0.8)	95 (2.5)	94 (2.5)	81 (1.9)	76 (2.2)	63 (2.2)	49 (5.5)	45 (5.1)
Iowa	100 (0.3)	100 (0.3)	99 (0.5)	96 (3.1)	98 (2.4)	86 (1.3)	86 (1.9)	75 (2.4)	59 (5.3)	69 (4.8)
Kentucky	97 (1.0)	99 (0.4)	97 (0.8)	91 (1.9)	93 (2.6)	72 (2.4)	74 (2.0)	54 (2.4)	37 (2.8)	37 (4.7)
Louisiana	94 (1.1)	97 (1.0)	91 (1.7)	85 (2.9)	88 (2.8)	55 (3.0)	57 (2.6)	40 (2.5)	31 (3.7)	32 (3.8)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	97 (0.6)	97 (0.9)	90 (1.6)	90 (3.2)	92 (2.0)	73 (1.9)	66 (2.9)	47 (2.2)	44 (3.6)	46 (4.1)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	98 (0.5)	99 (0.6)	95 (1.0)	95 (2.3)	95 (2.2)	76 (1.7)	73 (2.2)	59 (2.1)	46 (4.7)	49 (3.8)
Minnesota	99 (0.3)	100 (0.3)	97 (1.0)	95 (2.5)	96 (1.9)	86 (1.6)	88 (1.4)	69 (1.9)	54 (5.2)	62 (3.9)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	99 (0.4)	99 (0.5)	98 (0.8)	91 (4.4)	94 (2.3)	87 (1.3)	85 (2.2)	71 (2.6)	56 (6.7)	58 (5.2)
New Hampshire	100 (0.4)	100 (0.4)	98 (0.6)	98 (2.0)	95 (2.7)	87 (1.4)	83 (2.6)	66 (2.9)	58 (6.7)	54 (7.2)
New Jersey	98 (0.6)	98 (0.8)	97 (1.0)	96 (1.7)	94 (1.8)	81 (1.5)	74 (3.0)	61 (2.6)	49 (4.4)	51 (4.6)
New Mexico	99 (0.5)	98 (0.8)	96 (0.7)	93 (2.1)	87 (2.9)	76 (1.8)	68 (2.9)	47 (2.9)	35 (3.1)	31 (4.2)
New York	97 (0.6)	96 (1.7)	94 (1.6)	89 (2.9)	87 (3.1)	75 (1.4)	68 (3.3)	56 (3.0)	43 (4.7)	41 (4.6)
North Carolina	96 (0.8)	97 (1.7)	89 (1.4)	87 (2.4)	82 (3.6)	65 (2.8)	62 (3.0)	42 (1.9)	32 (3.1)	26 (3.8)
North Dakota	100 (0.2)	100 (0.1)	98 (0.8)	95 (3.3)	98 (1.0)	92 (1.4)	89 (2.0)	79 (3.1)	61 (5.6)	68 (6.5)
Ohio	98 (0.5)	99 (0.8)	96 (0.8)	94 (2.1)	90 (2.6)	76 (1.6)	76 (2.3)	58 (2.1)	46 (4.8)	38 (5.8)
Oklahoma	98 (0.5)	98 (1.1)	96 (1.0)	94 (2.5)	94 (4.0)	77 (1.7)	71 (2.7)	55 (2.2)	53 (4.7)	50 (5.3)
Pennsylvania	99 (0.5)	99 (0.9)	96 (1.2)	91 (3.5)	88 (4.2)	81 (2.4)	78 (2.4)	59 (2.6)	52 (4.9)	45 (6.5)
Rhode Island	99 (0.5)	97 (0.8)	94 (1.2)	90 (2.0)	86 (2.5)	76 (1.4)	69 (2.7)	54 (1.5)	36 (4.0)	32 (3.9)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	98 (0.6)	98 (0.9)	92 (1.5)	94 (1.6)	92 (2.3)	76 (1.7)	71 (3.1)	48 (2.7)	42 (3.0)	39 (3.6)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	99 (0.6)	98 (0.7)	95 (0.9)	92 (2.1)	94 (2.3)	79 (1.9)	71 (2.7)	52 (1.9)	39 (3.8)	42 (4.7)
West Virginia	98 (0.7)	98 (1.0)	95 (1.1)	93 (2.5)	91 (3.2)	73 (2.2)	66 (3.0)	52 (1.7)	36 (2.8)	36 (4.4)
Wisconsin	99 (0.5)	99 (0.4)	99 (0.5)	98 (1.4)	94 (3.2)	86 (1.7)	84 (2.0)	73 (2.0)	52 (6.0)	56 (4.9)
Wyoming	99 (0.3)	100 (0.3)	98 (0.6)	98 (1.3)	94 (2.0)	85 (1.3)	86 (1.7)	70 (1.9)	59 (5.6)	47 (5.3)
TERRITORIES										
Guam	86 (1.5)	90 (2.9)	75 (2.6)	68 (5.1)	74 (2.9)	44 (2.1)	50 (3.5)	26 (2.0)	20 (3.1)	21 (2.5)
Virgin Islands	76 (2.8)	83 (4.2)	75 (2.9)	64 (3.9)	73 (2.6)	15 (1.9)	21 (3.7)	15 (1.7)	9 (2.3)	12 (2.2)

When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. (xxx) Did not participate in the 1990 Trial State Assessment.

TABLE A.11 | Anchor Levels by Parents' Highest Level of Education (continued)

PUBLIC SCHOOLS	Grade 8 - 1990									
	Percentage of Students At or Above Level 300					Percentage of Students At or Above Level 350				
	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know	Graduated College	Some Education After High School	Graduated High School	Did Not Finish High School	I Don't Know
NATION	24 (2.2)	14 (2.1)	8 (1.3)	3 (1.1)	5 (1.6)	1 (0.4)	1 (0.7)	0 (0.2)	0 (0.0)	0 (0.0)
Northeast	31 (5.6)	16 (5.6)	11 (2.1)	*** (***)	*** (***)	1 (0.7)	1 (1.8)	0 (0.5)	*** (***)	*** (***)
Southeast	23 (4.1)	10 (4.0)	5 (2.1)	1 (1.2)	2 (2.0)	1 (0.7)	0 (0.0)	0 (0.8)	0 (0.0)	0 (0.0)
Central	18 (3.2)	17 (4.0)	11 (2.9)	*** (***)	*** (***)	0 (0.5)	1 (1.8)	0 (0.0)	*** (***)	*** (***)
West	23 (3.7)	15 (2.9)	5 (2.3)	5 (2.9)	5 (2.6)	1 (0.5)	2 (1.1)	0 (0.2)	0 (0.0)	0 (0.0)
STATES										
Alabama	15 (1.3)	9 (1.5)	5 (1.0)	1 (1.2)	3 (1.3)	1 (0.4)	0 (0.0)	0 (0.1)	0 (0.1)	0 (0.0)
Arizona	20 (1.8)	13 (2.0)	6 (1.3)	3 (1.3)	4 (1.6)	1 (0.3)	0 (0.4)	0 (0.2)	0 (0.0)	0 (0.2)
Arkansas	17 (1.6)	10 (1.5)	4 (0.8)	2 (0.7)	3 (1.0)	0 (0.2)	0 (0.4)	0 (0.0)	0 (0.1)	0 (0.0)
California	21 (2.1)	13 (2.0)	4 (1.3)	3 (1.5)	5 (1.3)	1 (0.4)	0 (0.5)	0 (0.0)	0 (0.0)	0 (0.4)
Colorado	24 (1.3)	15 (1.8)	7 (1.7)	3 (1.3)	5 (1.5)	1 (0.3)	0 (0.2)	0 (0.2)	0 (0.0)	0 (0.0)
Connecticut	33 (1.4)	17 (1.6)	9 (1.4)	2 (1.5)	6 (2.2)	1 (0.4)	0 (0.5)	0 (0.2)	0 (0.0)	0 (0.0)
Delaware	25 (1.8)	12 (2.0)	5 (0.7)	1 (1.1)	3 (1.8)	1 (0.9)	0 (0.4)	0 (0.1)	0 (0.0)	0 (0.0)
Dist. Columbia	6 (1.2)	2 (1.0)	1 (0.3)	0 (0.0)	1 (1.0)	1 (0.6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Florida	19 (1.6)	13 (2.0)	6 (1.1)	2 (1.0)	5 (1.5)	0 (0.2)	0 (0.1)	0 (0.2)	0 (0.0)	0 (0.4)
Georgia	23 (2.3)	15 (1.6)	6 (1.0)	3 (1.4)	6 (2.0)	1 (0.8)	1 (0.8)	0 (0.3)	0 (0.0)	0 (0.2)
Hawaii	18 (1.6)	13 (1.9)	5 (0.9)	6 (2.5	5 (1.3)	1 (0.4)	0 (0.3)	0 (0.1)	0 (0.3)	0 (0.0)
Idaho	23 (2.1)	17 (2.0)	9 (1.8)	4 (1.8)	7 (3.1)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Indiana	25 (2.3)	18 (1.6)	9 (1.5)	7 (2.4)	4 (1.9)	1 (0.6)	0 (0.4)	0 (0.1)	0 (0.0)	0 (0.8)
Iowa	32 (2.3)	27 (2.4)	15 (1.9)	6 (2.6)	16 (3.5)	1 (0.4)	0 (0.3)	0 (0.3)	0 (0.0)	0 (0.9)
Kentucky	17 (1.7)	16 (2.3)	6 (0.9)	2 (0.9)	3 (1.6)	1 (0.5)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)
Louisiana	9 (1.5)	7 (1.1)	2 (0.7)	2 (0.7)	3 (1.1)	0 (0.3)	0 (0.1)	0 (0.0)	0 (0.0)	0 (0.2)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	27 (1.9)	12 (2.0)	6 (1.0)	5 (1.7)	5 (1.6)	1 (0.4)	0 (0.3)	0 (0.0)	0 (0.2)	0 (0.3)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	24 (1.8)	16 (2.4)	7 (1.1)	4 (1.9)	7 (1.9)	1 (0.5)	1 (0.4)	0 (0.2)	0 (0.0)	0 (0.0)
Minnesota	32 (1.6)	25 (2.2)	11 (1.6)	6 (3.4)	10 (3.4)	2 (0.6)	1 (0.7)	0 (0.1)	0 (0.0)	0 (0.7)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	33 (1.9)	22 (2.2)	14 (2.0)	5 (2.4)	10 (2.7)	2 (0.7)	1 (0.5)	0 (0.2)	0 (0.0)	0 (0.0)
New Hampshire	29 (1.9)	18 (2.9)	10 (1.5)	4 (1.6)	8 (2.7)	1 (0.5)	0 (0.2)	0 (0.1)	0 (0.0)	0 (0.0)
New Jersey	32 (1.8)	17 (2.5)	11 (1.6)	4 (1.8)	6 (2.0)	1 (0.4)	0 (0.5)	0 (0.2)	0 (0.0)	0 (0.3)
New Mexico	21 (2.2)	9 (1.5)	3 (1.0)	3 (1.4)	1 (1.0)	1 (0.5)	0 (0.3)	0 (0.2)	0 (0.0)	0 (0.0)
New York	24 (1.8)	14 (2.6)	6 (1.2)	2 (1.7)	8 (2.6)	1 (0.6)	1 (0.6)	0 (0.3)	0 (0.5)	0 (0.6)
North Carolina	16 (1.7)	8 (1.3)	4 (0.8)	2 (1.1)	2 (1.4)	0 (0.2)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.0)
North Dakota	34 (2.4)	27 (4.5)	16 (3.5)	6 (4.7)	8 (4.5)	2 (0.8)	0 (0.4)	0 (0.5)	0 (0.0)	0 (0.0)
Ohio	23 (2.1)	14 (1.8)	8 (1.1)	4 (1.5)	2 (1.6)	1 (0.3)	0 (0.2)	0 (0.2)	0 (0.0)	0 (0.0)
Oklahoma	21 (2.1)	12 (1.6)	5 (1.0)	4 (2.0)	6 (2.8)	0 (0.4)	0 (0.2)	0 (0.1)	0 (0.0)	0 (0.0)
Pennsylvania	30 (2.3)	15 (2.0)	7 (1.7)	2 (1.2)	6 (2.5)	1 (0.4)	0 (0.3)	0 (0.2)	0 (0.0)	0 (0.0)
Rhode Island	23 (1.8)	14 (2.6)	7 (1.3)	3 (1.4)	4 (1.3)	1 (0.4)	0 (0.3)	0 (0.2)	0 (0.0)	0 (0.0)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	23 (1.8)	14 (2.0)	5 (1.2)	3 (1.1)	4 (1.8)	1 (0.5)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.2)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	30 (2.6)	15 (2.8)	5 (0.9)	3 (1.0)	8 (1.8)	3 (0.9)	0 (0.4)	0 (0.2)	0 (0.0)	0 (0.4)
West Virginia	18 (1.8)	12 (1.8)	4 (1.0)	1 (1.2)	4 (2.1)	0 (0.2)	0 (0.4)	0 (0.1)	0 (0.0)	0 (0.0)
Wisconsin	34 (2.3)	21 (2.2)	16 (1.7)	5 (2.2)	9 (2.4)	1 (0.5)	1 (0.6)	0 (0.2)	0 (0.0)	0 (0.0)
Wyoming	26 (1.5)	17 (1.8)	9 (1.2)	3 (1.8)	4 (1.7)	0 (0.3)	0 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)
TERRITORIES										
Guam	6 (1.3)	6 (2.3)	2 (0.7)	1 (0.6)	2 (0.9)	0 (0.1)	0 (0.7)	0 (0.0)	0 (0.3)	0 (0.2)
Virgin Islands	1 (0.9)	1 (0.8)	1 (0.4)	0 (0.0)	0 (0.1)	0 (0.0)	0 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)

When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. (xxx) Did not participate in the 1990 Trial State Assessment.

Anchor-Level Results by Type of School

The anchor-level results for students attending public schools, Catholic schools, and other types of private schools (non-Catholic) are presented in TABLE A.12. In 1992, greater percentages of Catholic-school eighth graders, as well as those attending non-Catholic private schools, reached Levels 250 and 300 than their public-school counterparts. Similar results occurred at grade 12 for Level 300.

With the exception of fourth graders attending other private schools, these data reveal a general pattern of apparent improvement between 1990 and 1992 for students attending all types of schools across the grades and anchor levels. Statistically significant increases were noted for fourth graders attending public schools for Levels 200 and 250, for eighth graders attending all three types of schools for Level 300, and for twelfth graders attending public schools at Level 250 and attending other private schools for Levels 300 and 350.

TABLE A.12 Average Mathematics Proficiency and Anchor Levels by Type of School, Grades 4, 8, and 12

	Assessment Years	Percent of Students	Average Proficiency	Percentage of Students At or Above			
				Level 200	Level 250	Level 300	Level 350
Grade 4							
Public Schools	**1992**	87(1.0)	217(0.8)>	71(1.0)>	16(0.9)>	0(0.1)	0(0.0)
	1990	89(1.4)	212(1.1)	66(1.5)	11(1.2)	0(0.1)	0(0.0)
Catholic Schools	**1992**	8(0.7)	227(1.2)>	84(1.4)	20(1.5)	0(0.2)	0(0.0)
	1990	7(1.2)	219(3.0)	76(4.2)	14(2.4)	0(0.1)	0(0.0)
Other Private Schools	**1992**	4(0.9)	226(3.7)	80(4.8)	20(3.3)	0(0.3)	0(0.0)
	1990	4(0.9)	232(3.6)!	87(4.0)	27(4.9)	0(0.1)	0(0.0)
Grade 8							
Public Schools	**1992**	89(0.9)	266(1.0)>	96(0.4)	67(1.1)	18(0.9)>	1(0.2)
	1990	92(1.3)	262(1.4)	95(0.7)	64(1.4)	14(1.1)	0(0.3)
Catholic Schools	**1992**	6(0.7)	277(2.1)	99(0.5)	80(2.4)	25(2.2)>	0(0.2)
	1990	5(1.0)	271(3.5)	99(0.6)	78(4.8)	15(2.5)	0(0.3)
Other Private Schools	**1992**	5(0.7)	284(4.1)>	99(0.8)	82(3.4)	35(4.9)>	2(0.9)
	1990	3(0.8)	272(3.1)!	98(1.8)	77(4.5)	18(4.1)	0(0.0)
Grade 12							
Public Schools	**1992**	87(1.2)	297(1.0)	100(0.1)	91(0.6)>	47(1.3)	6(0.5)
	1990	91(2.0)	294(1.2)	100(0.2)	88(1.0)	44(1.5)	5(0.9)
Catholic Schools	**1992**	8(1.3)	310(2.5)	100(0.0)	97(1.0)	65(3.8)	8(1.5)
	1990	6(1.6)	301(4.6)!	100(0.2)	93(2.2)	53(6.6)	6(1.5)
Other Private Schools	**1992**	4(1.0)	319(4.3)!>	100(0.0)	97(1.1)	73(5.0)>	19(3.0)>
	1990	4(1.4)	298(5.1)!	100(0.0)	95(1.9)	49(7.5)	5(2.9)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. ! Interpret with caution -- the nature of the sample does not allow accurate determination of the variability of this estimated statistic. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standrd error of the difference (see Appendix for details). When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 percent or less were rounded to 0 percent.

Anchor-Level Results by School Performance

To examine the relationship between level of school performance and level of student performance, NAEP sorted schools by their students' average proficiency on the mathematics assessment, identifying the top one-third and bottom one-third of the schools. TABLE A.13 shows the anchor-level results for students in the top and the bottom one-third of the schools in the nation.

As would be expected from how the groups were formed, students in the top one-third performing public and private schools had higher mathematics proficiency than did those in the lower-performing schools in both assessments. Further, this disparity tended to increase for the nation between 1990 and 1992, because the students attending better-performing schools showed generally more improvement than those attending the poorer-performing schools.

For students attending the top one-third schools, the increase in average proficiency at all three grades was reflected in greater percentages reaching Levels 200 and 250 at grade 4 and Levels 250 and 300 at both grades 8 and 12. Despite an increase in average proficiency at grade 12, for students attending the bottom one-third performing schools, none of the seeming increases at any of the anchor levels were statistically significant. In fact, in 1992, greater percentages of eighth graders in the better-performing schools reached Levels 250 and 300 than did twelfth graders in the poorer-performing schools.

The results for states and territories by school performance are presented in TABLES A.14 and A.15. A similar pattern prevails. In general, it was estimated that about one-fifth to one-third of the fourth graders in the top one-third performing schools attained Level 250 in comparison to 15 percent or fewer in the bottom one-third performing schools. At grade 8, in 1992, there was a great range in the percentage of students in the better performing schools estimated to be at or above Level 300 --from 1 to 44 percent. The range was smaller for students attending the poorer performing schools -- estimated to be from 0 to 20 percent.

The trends between 1990 and 1992 show increased percentages of students in the upper one-third performing schools reaching Level 200 in Hawaii and at Level 300 in Colorado, Minnesota, New York, and Texas. For students in the lower one-third performing schools, gains were found at Level 250 in Hawaii, New Hampshire, North Carolina, and Oklahoma as well as at Level 300 in Hawaii and Minnesota.

TABLE A.13 Average Mathematics Proficiency and Anchor Levels for the Top One-Third of the Schools and the Bottom One-Third of the Schools, Grades 4, 8, and 12

	Assessment Years	Percent of Students	Average Proficiency	Percentage of Students At or Above			
				Level 200	Level 250	Level 300	Level 350
Grades 4							
Top One-Third Schools	**1992**	34(2.8)	237(0.8)>	92(0.8)>	31(1.3)>	1(0.3)	0(0.0)
	1990	34(3.9)	229(1.4)	87(1.2)	23(2.6)	0(0.3)	0(0.0)
Bottom One-Third Schools	**1992**	29(2.1)	196(1.2)	46(2.0)	3(0.5)	0(0.0)	0(0.0)
	1990	30(3.4)	194(1.7)	42(2.5)	4(0.8)	0(0.0)	0(0.0)
Grades 8							
Top One-Third Schools	**1992**	29(3.1)	289(1.3)>	100(0.3)	90(1.1)>	37(1.8)>	2(0.5)
	1990	30(4.4)	280(1.2)	99(0.5)	83(1.5)	27(2.6)	1(0.8)
Bottom One-Third Schools	**1992**	32(1.8)	245(0.9)	92(1.1)	43(1.3)	5(0.6)	0(0.1)
	1990	34(3.9)	244(1.8)	89(1.7)	43(1.8)	6(0.9)	0(0.1)
Grades 12							
Top One-Third Schools	**1992**	35(3.1)	316(1.1)>	100(0.1)	98(0.4)>	71(1.5)>	13(1.0)
	1990	34(5.0)	310(1.2)	100(0.1)	95(0.9)	63(1.6)	11(1.9)
Bottom One-Third Schools	**1992**	27(2.2)	279(1.0)>	100(0.3)	81(1.3)	26(1.6)	1(0.3)
	1990	26(3.3)	274(1.5)	99(0.6)	78(2.1)	21(1.9)	1(0.3)

> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 95 percent confidence level. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details). When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages 0.5 percent or less were rounded to 0 percent.

TABLE A.14 | Average Mathematics Proficiency and Anchor Levels for the Top One-Third of the Schools

PUBLIC SCHOOLS	Grade 4 - 1992					
	Percentage of Students	Average Proficiency	Percentage of Students At or Above Level 200	Percentage of Students At or Above Level 250	Percentage of Students At or Above Level 300	Percentage of Students At or Above Level 350
NATION	44 (2.9)	234 (0.9)	89 (1.0)	28 (1.4)	1 (0.2)	0 (0.0)
Northeast	59 (6.7)	236 (2.1)	89 (1.4)	32 (3.8)	1 (0.6)	0 (0.0)
Southeast	21 (5.2)	234 (2.8)!	91 (2.5)!	28 (3.8)!	1 (0.9)!	0 (0.0)!
Central	56 (8.3)	233 (1.2)	90 (1.9)	27 (2.1)	0 (0.1)	0 (0.0)
West	43 (4.4)	232 (1.9)	87 (2.4)	26 (3.4)	1 (0.8)	0 (0.0)
STATES						
Alabama	34 (5.2)	225 (1.8)	81 (2.0)	20 (2.5)	0 (0.1)	0 (0.0)
Arizona	35 (2.9)	230 (1.0)	87 (1.3)	23 (1.2)	0 (0.2)	0 (0.0)
Arkansas	33 (3.7)	222 (1.5)	78 (2.0)	15 (2.0)	0 (0.1)	0 (0.0)
California	34 (4.8)	228 (1.5)	83 (1.6)	23 (2.1)	0 (0.3)	0 (0.0)
Colorado	35 (4.0)	234 (1.0)	89 (1.4)	28 (1.2)	1 (0.3)	0 (0.0)
Connecticut	36 (3.9)	242 (1.1)	94 (0.9)	39 (2.4)	1 (0.6)	0 (0.0)
Delaware	31 (0.2)	228 (1.9)	82 (2.5)	25 (1.9)	0 (0.2)	0 (0.0)
Dist. Columbia	30 (0.3)	211 (0.9)	60 (2.0)	15 (0.9)	1 (0.4)	0 (0.0)
Florida	34 (4.4)	229 (1.3)	86 (1.3)	23 (2.2)	0 (0.4)	0 (0.0)
Georgia	32 (4.2)	234 (1.2)	89 (1.6)	29 (2.0)	0 (0.3)	0 (0.0)
Hawaii	32 (4.1)	229 (1.1)	8[illegible]	25 (1.8)	0 (0.3)	0 (0.0)
Idaho	33 (4.4)	231 (1.1)	8[illegible]	22 (1.7)	0 (0.2)	0 (0.0)
Indiana	34 (4.5)	232 (0.7)	88 (1.3)	25 (1.8)	0 (0.2)	0 (0.0)
Iowa	34 (4.7)	240 (0.8)	93 (0.8)	37 (1.6)	1 (0.4)	0 (0.0)
Kentucky	35 (3.5)	226 (1.0)	82 (1.7)	22 (1.8)	0 (0.2)	0 (0.0)
Louisiana	36 (4.1)	221 (1.4)	78 (1.8)	14 (1.7)	0 (0.2)	0 (0.0)
Maine	31 (4.8)	241 (1.3)	93 (1.4)	38 (2.2)	1 (0.6)	0 (0.1)
Maryland	32 (3.5)	236 (1.3)	88 (1.0)	33 (2.3)	1 (0.5)	0 (0.0)
Massachusetts	37 (4.4)	241 (1.2)	94 (0.9)	37 (2.3)	1 (0.4)	0 (0.0)
Michigan	34 (5.2)	236 (1.4)	91 (1.3)	32 (2.4)	1 (0.4)	0 (0.0)
Minnesota	31 (4.1)	239 (0.9)	92 (0.9)	36 (1.7)	1 (0.3)	0 (0.0)
Mississippi	31 (2.9)	218 (1.1)	73 (2.1)	13 (1.5)	0 (0.2)	0 (0.0)
Missouri	38 (4.6)	234 (1.1)	89 (1.0)	29 (2.0)	0 (0.3)	0 (0.0)
Nebraska	34 (4.8)	238 (1.0)	91 (1.3)	34 (2.0)	1 (0.5)	0 (0.0)
New Hampshire	33 (5.0)	241 (1.4)	93 (1.0)	37 (2.4)	1 (0.4)	0 (0.0)
New Jersey	37 (4.5)	243 (1.3)	94 (1.1)	39 (2.7)	1 (0.4)	0 (0.0)
New Mexico	34 (5.2)	227 (1.5)	84 (1.8)	21 (2.5)	0 (0.2)	0 (0.0)
New York	32 (3.6)	235 (1.2)	89 (1.8)	29 (2.4)	1 (0.4)	0 (0.0)
North Carolina	34 (4.1)	227 (1.3)	82 (1.8)	21 (1.9)	1 (0.3)	0 (0.0)
North Dakota	34 (4.4)	237 (0.9)	92 (1.5)	31 (2.1)	0 (0.3)	0 (0.0)
Ohio	34 (3.9)	234 (1.1)	89 (1.1)	28 (2.5)	1 (0.3)	0 (0.0)
Oklahoma	37 (4.5)	230 (1.1)	87 (1.8)	22 (1.8)	0 (0.2)	0 (0.0)
Pennsylvania	33 (4.5)	240 (1.2)	93 (1.3)	35 (2.7)	1 (0.4)	0 (0.0)
Rhode Island	35 (4.9)	231 (1.4)	88 (1.6)	23 (2.1)	0 (0.3)	0 (0.0)
South Carolina	36 (4.2)	226 (1.1)	80 (1.2)	22 (1.6)	0 (0.2)	0 (0.0)
Tennessee	34 (4.1)	225 (1.3)	81 (1.8)	19 (1.6)	0 (0.1)	0 (0.0)
Texas	37 (4.7)	231 (1.7)	87 (1.5)	25 (2.5)	0 (0.2)	0 (0.0)
Utah	32 (4.1)	235 (0.9)	90 (1.0)	30 (1.7)	1 (0.4)	0 (0.0)
Virginia	35 (4.2)	239 (1.6)	90 (1.3)	35 (2.7)	1 (0.8)	0 (0.0)
West Virginia	35 (4.0)	225 (1.5)	80 (2.0)	20 (1.9)	0 (0.3)	0 (0.0)
Wisconsin	34 (5.0)	238 (1.2)	92 (1.4)	35 (2.2)	1 (0.5)	0 (0.0)
Wyoming	30 (4.0)	234 (0.9)	92 (1.1)	27 (2.4)	0 (0.3)	0 (0.0)
TERRITORY						
Guam	33 (0.1)	202 (1.5)	53 (2.2)	8 (1.3)	0 (0.0)	0 (0.0)

The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0 percent or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and percentages less than 0.5 percent were rounded to 0 percent. ! Interpret with caution - the nature of the sample does not allow accurate determination of the variability of this estimated statistic.

TABLE A.14 | Average Mathematics Proficiency and Anchor Levels for the Top One-Third of the Schools (continued)

PUBLIC SCHOOLS	Grade 8 - 1992					
	Percentage of Students	Average Proficiency	Percentage of Students At or Above Level 200	Percentage of Students At or Above Level 250	Percentage of Students At or Above Level 300	Percentage of Students At or Above Level 350
NATION	39 (4.1)	284 (1.2)	99 (0.2)	85 (1.2)	31 (1.8)	1 (0.4)
Northeast	45 (9.0)	285 (3.5)	100 (0.5)	85 (3.1)	34 (2.6)	2 (0.9)
Southeast	9 (4.4)	284 (1.6)!	99 (0.6)!	87 (3.5)!	31 (3.1)!	0 (1.0)!
Central	59 (8.2)	284 (1.5)	100 (0.3)	87 (0.9)	30 (3.2)	1 (0.5)
West	45 (9.6)	282 (2.0)!	99 (0.5)!	83 (2.3)!	30 (3.2)!	2 (0.9)!
STATES						
Alabama	32 (4.6)	269 (1.8)	97 (0.7)	71 (2.0)	18 (1.9)	0 (0.2)
Arizona	37 (4.5)	279 (1.5) >	100 (0.2)	84 (1.6)	23 (2.2)	0 (0.4)
Arkansas	32 (3.9)	270 (1.1)	99 (0.3)	75 (1.9)	15 (1.2)	0 (0.3)
California	34 (4.4)	281 (1.9) >	99 (0.7)	82 (1.9)	29 (2.2)	1 (0.7)
Colorado	34 (4.1)	286 (1.3) >	100 (0.3)	89 (1.4)	32 (1.9) >	1 (0.5)
Connecticut	34 (3.1)	293 (0.9) >	100 (0.1)	92 (1.2)	43 (1.7)	1 (0.4)
Delaware	29 (0.2) »	273 (1.8)	98 (0.8)	74 (2.1)	22 (2.3)	1 (0.5)
Dist. Columbia	32 (0.6) »	255 (1.8)	92 (1.6)	56 (1.8)	12 (2.6)	1 (0.6)
Florida	36 (4.1)	276 (1.4) >	98 (0.5)	80 (1.6)	24 (2.1)	1 (0.3)
Georgia	34 (4.6)	275 (1.3)	99 (0.4)	79 (1.3)	22 (1.7)	1 (0.6)
Hawaii	37 (0.3) «	270 (1.2) »	98 (0.7) >	69 (1.5)	21 (1.7)	1 (0.5)
Idaho	29 (3.9)	283 (1.0) >	100 (0.2)	88 (1.5)	29 (2.3)	1 (0.4)
Indiana	34 (5.3)	283 (1.3)	100 (0.3)	86 (1.5)	29 (1.6)	1 (0.7)
Iowa	32 (4.6)	293 (1.0)	100 (0.2)	94 (1.0)	41 (2.2)	2 (0.7)
Kentucky	33 (4.7)	275 (1.4) >	99 (0.6)	78 (1.6)	23 (2.2)	1 (0.5)
Louisiana	33 (4.9)	268 (1.9) >	99 (0.6)	72 (2.3)	15 (1.9)	0 (0.2)
Maine	30 (4.6)	289 (1.6)	100 (0.2)	93 (1.5)	33 (2.5)	1 (0.5)
Maryland	32 (4.0)	286 (1.5)	99 (0.4)	85 (1.4)	36 (2.4)	2 (0.8)
Massachusetts	35 (4.3)	289 (1.5)	100 (0.2)	90 (1.4)	38 (2.7)	1 (0.5)
Michigan	35 (5.1)	285 (1.7)	100 (0.2)	88 (1.2)	32 (2.6)	1 (0.4)
Minnesota	35 (4.8)	291 (1.0) »	100 (0.2)	90 (1.1)	40 (1.5) >	2 (0.5)
Mississippi	34 (4.8)	262 (1.1)	97 (0.7)	65 (1.9)	11 (1.3)	0 (0.1)
Missouri	31 (4.6)	282 (0.8)	99 (0.4)	84 (1.6)	29 (1.9)	1 (0.5)
Nebraska	27 (4.7)	291 (1.2)	100 (0.2)	92 (1.3)	39 (3.0)	1 (0.5)
New Hampshire	29 (4.3)	287 (1.5)	99 (0.3)	89 (1.4)	35 (2.5)	2 (0.5)
New Jersey	30 (3.4)	293 (1.2) >	100 (0.0)	92 (1.3)	44 (2.5)	2 (0.8)
New Mexico	31 (4.0)	273 (1.1)	99 (0.4)	76 (1.7)	18 (1.6)	0 (0.3)
New York	30 (3.8)	288 (1.3) »	100 (0.2)	89 (1.4)	34 (2.1) >	2 (0.6)
North Carolina	34 (4.8)	270 (1.2) »	98 (0.5)	73 (1.6)	18 (1.9)	0 (0.2)
North Dakota	26 (4.0) <	293 (1.5)	100 (0.2)	93 (1.4)	42 (2.0)	1 (0.7)
Ohio	34 (5.2)	284 (1.6) >	100 (0.2)	87 (1.8)	30 (2.9)	1 (0.6)
Oklahoma	32 (4.5)	280 (1.1)	99 (0.5)	86 (1.4)	26 (2.3)	1 (0.4)
Pennsylvania	36 (4.5)	286 (1.3)	100 (0.3)	87 (1.3)	33 (2.0)	1 (0.4)
Rhode Island	31 (0.2)	280 (1.0)	100 (0.3)	83 (1.9)	26 (1.9)	1 (0.7)
South Carolina	33 (3.5)	276 (1.2)	99 (0.4)	76 (1.7)	25 (1.8)	1 (0.4)
Tennessee	33 (4.3)	272 (1.4)	99 (0.5)	76 (1.9)	20 (1.6)	0 (0.4)
Texas	36 (4.2)	282 (1.5) »	99 (0.4)	82 (1.4)	30 (2.1) >	2 (0.8)
Utah	32 (3.9)	283 (0.9)	100 (0.3)	87 (1.4)	28 (1.7)	1 (0.4)
Virginia	33 (4.3)	285 (1.5)	100 (0.3)	86 (1.5)	34 (1.9)	2 (0.5)
West Virginia	32 (4.9)	269 (1.0)	99 (0.6)	73 (2.3)	14 (1.2)	0 (0.1)
Wisconsin	39 (5.0)	289 (1.1)	100 (0.2)	91 (1.7)	37 (2.0)	1 (0.5)
Wyoming	28 (3.1)	283 (1.4)	100 (0.3)	87 (1.6)	28 (1.9)	1 (0.4)
TERRITORIES						
Guam	13 (0.2) «	244 (3.2)	88 (2.5)	43 (5.0)	7 (1.7)	0 (0.3)
Virgin Islands	28 (0.2) «	232 (1.3)	86 (1.9)	27 (2.3)	1 (0.8)	0 (0.0)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated. (xxx) Did not participate in the 1990 Trial State Assessment.

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TABLE A.14 | Average Mathematics Proficiency and Anchor Levels for the Top One-Third of the Schools (continued)

PUBLIC SCHOOLS	Grade 8 - 1990					
	Percentage of Students	Average Proficiency	Percentage of Students At or Above Level 200	Percentage of Students At or Above Level 250	Percentage of Students At or Above Level 300	Percentage of Students At or Above Level 350
NATION	27 (4.8)	281 (1.5)	99 (0.5)	82 (1.6)	28 (3.1)	2 (0.9)
Northeast	50(11.9)	282 (3.6)!	100 (0.6)!	85 (3.5)!	31 (5.5)!	1 (0.9)!
Southeast	13 (5.9)	281 (5.6)!	95 (3.4)!	77 (6.9)!	36 (6.9)!	2 (1.4)!
Central	35(12.2)	279 (1.8)!	100 (0.4)!	84 (2.0)!	21 (3.2)!	1 (1.0)!
West	19 (8.7)	281 (2.4)!	98 (1.2)!	80 (3.3)!	31 (7.0)!	3 (2.2)!
STATES						
Alabama	33 (4.2)	268 (1.2)	98 (0.4)	73 (1.5)	15 (1.4)	1 (0.3)
Arizona	36 (3.2)	275 (1.1)	99 (0.4)	80 (1.9)	20 (1.6)	1 (0.4)
Arkansas	32 (3.7)	270 (0.9)	99 (0.3)	75 (1.8)	16 (1.3)	0 (0.3)
California	32 (4.1)	275 (1.7)	98 (0.6)	78 (1.9)	22 (2.2)	1 (0.5)
Colorado	33 (3.5)	281 (0.9)	100 (0.2)	86 (1.0)	26 (1.5)	1 (0.3)
Connecticut	32 (2.8)	289 (1.0)	100 (0.2)	90 (1.4)	38 (1.6)	2 (0.6)
Delaware	26 (0.1)	276 (2.1)	98 (0.9)	75 (2.7)	27 (2.0)	1 (0.7)
Dist. Columbia	29 (0.2)	253 (2.1)	94 (1.0)	50 (2.9)	9 (1.6)	1 (0.7)
Florida	33 (3.9)	272 (1.3)	98 (0.8)	75 (1.7)	20 (1.4)	1 (0.3)
Georgia	33 (4.0)	278 (1.7)	99 (0.4)	79 (1.7)	26 (2.1)	2 (1.0)
Hawaii	45 (0.3)	263 (1.2)	95 (0.7)	64 (1.7)	17 (1.2)	1 (0.3)
Idaho	37 (0.8)	280 (1.3)	100 (0.3)	86 (1.7)	25 (2.3)	0 (0.3)
Indiana	34 (5.2)	280 (1.3)	100 (0.2)	84 (1.2)	26 (2.0)	1 (0.6)
Iowa	29 (4.8)	290 (1.5)	100 (0.2)	91 (1.0)	37 (2.6)	2 (0.6)
Kentucky	32 (4.5)	270 (1.1)	99 (0.4)	72 (2.0)	17 (1.6)	1 (0.4)
Louisiana	33 (4.0)	262 (1.8)	97 (0.7)	66 (2.5)	11 (1.5)	0 (0.3)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	33 (4.0)	283 (1.6)	99 (0.3)	84 (1.5)	31 (2.5)	2 (0.5)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	32 (4.3)	282 (1.2)	100 (0.2)	84 (1.3)	27 (1.9)	2 (0.6)
Minnesota	32 (4.2)	286 (0.8)	100 (0.3)	88 (1.1)	33 (1.9)	2 (0.7)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	33 (3.4)	290 (1.1)	100 (0.1)	92 (1.1)	37 (2.4)	2 (0.8)
New Hampshire	31 (1.0)	286 (1.3)	100 (0.2)	89 (1.5)	32 (2.4)	1 (0.5)
New Jersey	32 (3.9)	290 (1.1)	100 (0.2)	90 (1.2)	38 (1.9)	2 (0.7)
New Mexico	36 (0.7)	271 (1.4)	99 (0.5)	76 (1.9)	18 (2.0)	1 (0.5)
New York	29 (3.5)	281 (1.2)	100 (0.3)	84 (1.8)	26 (1.4)	2 (0.8)
North Carolina	33 (4.2)	265 (1.2)	97 (0.8)	68 (1.6)	16 (1.4)	0 (0.1)
North Dakota	42 (2.9)	291 (1.3)	100 (0.0)	93 (1.3)	36 (2.7)	2 (0.8)
Ohio	33 (4.2)	278 (1.1)	99 (0.3)	83 (1.3)	23 (1.5)	1 (0.3)
Oklahoma	33 (4.0)	277 (1.2)	99 (0.5)	81 (1.3)	24 (1.9)	1 (0.4)
Pennsylvania	32 (4.8)	284 (1.5)	100 (0.3)	87 (1.6)	30 (2.0)	1 (0.5)
Rhode Island	30 (0.6)	278 (1.2)	99 (0.5)	81 (1.6)	26 (1.4)	1 (0.4)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	34 (4.5)	275 (1.3)	99 (0.5)	79 (1.5)	21 (2.1)	1 (0.5)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	36 (3.7)	286 (2.3)	100 (0.2)	85 (1.5)	34 (2.9)	3 (1.0)
West Virginia	35 (5.1)	267 (1.1)	98 (0.5)	70 (1.7)	15 (1.6)	0 (0.2)
Wisconsin	34 (4.5)	288 (1.2)	100 (0.2)	89 (1.1)	35 (2.5)	1 (0.5)
Wyoming	23 (0.5)	282 (1.1)	100 (0.2)	87 (1.6)	27 (2.9)	0 (0.3)
TERRITORIES						
Guam	15 (0.2)	237 (2.1)	85 (3.6)	34 (1.4)	4 (1.1)	0 (0.0)
Virgin Islands	29 (0.2)	231 (1.3)	84 (2.3)	25 (1.5)	2 (1.1)	0 (0.1)

(xxx) Did not participate in the 1990 Trial State Assessment.

TABLE A.15 | Average Mathematics Proficiency and Anchor Levels for the Bottom One-Third of the Schools

PUBLIC SCHOOLS	Grade 4 - 1992					
	Percentage of Students	Average Proficiency	Percentage of Students At or Above Level 200	Percentage of Students At or Above Level 250	Percentage of Students At or Above Level 300	Percentage of Students At or Above Level 350
NATION	23 (1.6)	192 (1.0)	40 (2.0)	2 (0.4)	0 (0.0)	0 (0.0)
Northeast	24 (3.8)	194 (2.1)	43 (4.8)	4 (1.2)	0 (0.0)	0 (0.0)
Southeast	38 (4.3)	192 (1.9)	40 (3.3)	2 (0.6)	0 (0.0)	0 (0.0)
Central	12 (3.3)	190 (3.2)!	38 (4.3)!	1 (0.6)!	0 (0.0)!	0 (0.0)!
West	2[illegible]	190 (1.3)	38 (1.7)	2 (0.3)	0 (0.0)	0 (0.0)
STATES						
Alabama	3[illegible]	188 (1.1)	34 (2.0)	1 (0.4)	0 (0.0)	0 (0.0)
Arizona	3[illegible]	197 (1.6)	46 (2.5)	3 (0.8)	0 (0.0)	0 (0.0)
Arkansas	32	194 (1.5)	43 (2.3)	3 (0.7)	0 (0.0)	0 (0.0)
California	31 [illegible]	183 (2.2)	33 (2.8)	2 (0.5)	0 (0.0)	0 (0.0)
Colorado	32 (3.[illegible]	205 (1.0)	57 (2.1)	6 (0.9)	0 (0.0)	0 (0.0)
Connecticut	30 (3[illegible]	203 (2.4)	54 (3.5)	7 (1.2)	0 (0.1)	0 (0.0)
Delaware	40 (0.[illegible]	207 (1.4)	58 (2.6)	9 (1.3)	0 (0.2)	0 (0.0)
Dist. Columbia	38 (0.3)	175 (0.8)	18 (1.4)	0 (0.1)	0 (0.0)	0 (0.0)
Florida	33 (4.0)	194 (1.9)	45 (2.5)	3 (0.7)	0 (0.1)	0 (0.0)
Georgia	[illegible] (3.4)	196 (1.2)	45 (2.0)	4 (0.7)	0 (0.1)	0 (0.0)
Hawaii	[illegible].6)	197 (1.4)	48 (2.2)	5 (1.0)	0 (0.1)	0 (0.0)
Idaho	[illegible]2)	211 (1.2)	65 (2.6)	8 (1.2)	0 (0.0)	0 (0.0)
Indiana	[illegible]6)	206 (1.2)	59 (2.2)	5 (1.0)	0 (0.0)	0 (0.0)
Iowa	[illegible]1)	217 (1.2)	73 (1.9)	13 (1.4)	0 (0.0)	0 (0.0)
Kentucky	32 (3.6)	201 (0.9)	51 (1.8)	4 (0.7)	0 (0.0)	0 (0.0)
Louisiana	33 (4.1)	181 (2.1)	25 (2.3)	1 (0.6)	0 (0.0)	0 (0.0)
Maine	34 (5.7)	221 (0.9)	79 (1.9)	15 (1.3)	0 (0.1)	0 (0.0)
Maryland	35 (3.6)	195 (2.1)	44 (2.8)	4 (0.9)	0 (0.0)	0 (0.0)
Massachusetts	28 (3.8)	203 (1.9)	55 (2.9)	5 (1.3)	0 (0.0)	0 (0.0)
Michigan	33 (4.4)	197 (2.9)	48 (3.9)	5 (0.9)	0 (0.0)	0 (0.0)
Minnesota	38 (4.7)	217 (1.4)	71 (2.3)	14 (1.2)	0 (0.3)	0 (0.0)
Mississippi	[illegible] (3.4)	183 (1.6)	29 (2.2)	1 (0.3)	0 (0.0)	0 (0.0)
Missouri	[illegible]3.9)	204 (1.9)	58 (2.6)	5 (1.0)	0 (0.0)	0 (0.0)
Nebraska	[illegible] (4.4)	209 (1.1)	62 (2.0)	8 (1.4)	0 (0.0)	0 (0.0)
New Hampshire	[illegible]2 (4.6)	215 (1.1)	73 (2.4)	9 (1.8)	0 (0.1)	0 (0.0)
New Jersey	31 (3.1)	202 (2.7)	53 (4.0)	5 (1.5)	0 (0.0)	0 (0.0)
New Mexico	35 (5.3)	197 (1.4)	45 (2.8)	3 (0.8)	0 (0.0)	0 (0.0)
New York	37 (4.6)	198 (2.1)	49 (3.0)	4 (1.1)	0 (0.1)	0 (0.0)
North Carolina	34 (4.5)	197 (1.0)	47 (2.0)	4 (0.9)	0 (0.0)	0 (0.0)
North Dakota	34 (3.9)	218 (0.9)	75 (1.5)	11 (1.5)	0 (0.1)	0 (0.0)
Ohio	29	199 (1.9)	48 (2.7)	4 (0.9)	0 (0.0)	0 (0.0)
Oklahoma	3[illegible]	207 (1.2)	60 (2.9)	5 (1.2)	0 (0.0)	0 (0.0)
Pennsylvania	30 [illegible].9)	202 (2.2)	54 (3.0)	5 (1.0)	0 (0.0)	0 (0.0)
Rhode Island	32 (4.1)	192 (2.4)	41 (3.3)	2 (1.0)	0 (0.0)	0 (0.0)
South Carolina	31 (3.7)	194 (1.4)	41 (2.2)	3 (0.7)	0 (0.1)	0 (0.0)
Tennessee	33 (4.4)	193 (1.8)	41 (2.7)	2 (0.7)	0 (0.0)	0 (0.0)
Texas	33 [illegible]	200 (1.5)	51 (2.5)	4 (1.0)	0 (0.0)	0 (0.0)
Utah	35	211 (1.1)	66 (1.7)	8 (1.1)	0 (0.0)	0 (0.0)
Virginia	3[illegible]	202 (1.2)	53 (2.7)	5 (0.6)	0 (0.2)	0 (0.0)
West Virginia	3[illegible]	202 (1.1)	53 (2.0)	4 (0.7)	0 (0.1)	0 (0.0)
Wisconsin	32 (4.5)	214 (1.5)	69 (2.2)	11 (1.2)	0 (0.1)	0 (0.0)
Wyoming	37 (5.0)	215 (1.2)	71 (2.2)	10 (1.3)	0 (0.1)	0 (0.0)
TERRITORY						
Guam	37 [illegible]	180 (1.5)	28 (2.3)	2 (0.6)	0 (0.1)	0 (0.0)

The standard errors of the estim[illegible] ercentages and proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value f[illegible] whole population is within plus or minus two standard errors of the estimate for the sample. When the proportion of students is either 0[illegible] or 100 percent, the standard error is inestimable. However, percentages 99.5 percent and greater were rounded to 100 percent and perc[illegible] less than 0.5 percent were rounded to 0 percent. ! Interpret with caution - the nature of the sample does not allow accurate determination [illegible] variability of this estimated statistic.

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TABLE A.15 | Average Mathematics Proficiency and Anchor Levels for the Bottom One-Third of the Schools (continued)

PUBLIC SCHOOLS	Grade 8 - 1992					
	Percentage of Students	Average Proficiency	Percentage of Students At or Above Level 200	Percentage of Students At or Above Level 250	Percentage of Students At or Above Level 300	Percentage of Students At or Above Level 350
NATION	25 (1.9)	240 (1.4)	90 (1.6)	36 (2.0)	4 (0.7)	0 (0.1)
Northeast	29 (3.8)	237 (2.6)	91 (2.7)	31 (4.2)	3 (1.1)	0 (0.0)
Southeast	37 (5.5)	242 (2.8)	90 (2.6)	40 (3.8)	5 (1.4)	0 (0.1)
Central	14 (2.6)	240 (3.6)	90 (3.1)	36 (6.3)	3 (1.4)	0 (0.2)
West	20 (3.7)	240 (1.7)	89 (2.1)	35 (2.0)	4 (1.0)	0 (0.2)
STATES						
Alabama	36 (4.7)	234 (2.9)	87 (3.1)	30 (2.6)	2 (1.0)	0 (0.0)
Arizona	32 (3.7)	247 (2.0) >	93 (1.2)	47 (3.0)	5 (0.9)	0 (0.1)
Arkansas	33 (4.1)	240 (1.4)	87 (1.5)	39 (1.7)	4 (0.7)	0 (0.0)
California	33 (4.1)	236 (2.0)	84 (1.8)	35 (2.4)	3 (0.9)	0 (0.1)
Colorado	34 (4.0)	257 (1.3) >	95 (0.9)	59 (1.9)	10 (0.9)	0 (0.1)
Connecticut	36 (3.2)	251 (2.1)	93 (1.8)	51 (2.6)	8 (1.3)	0 (0.1)
Delaware	41 (0.2) «	255 (1.3) >	95 (0.9)	56 (2.4)	10 (1.0)	0 (0.2)
Dist. Columbia	38 (0.4)	219 (1.1)	73 (2.0)	16 (1.7)	0 (0.2)	0 (0.0)
Florida	34 (3.8)	241 (2.4)	88 (2.4)	41 (2.8)	5 (0.8)	0 (0.1)
Georgia	34 (3.9)	242 (1.3)	90 (1.6)	41 (1.9)	4 (1.1)	0 (0.0)
Hawaii	31 (0.3) «	241 (1.3) »	86 (1.6)	41 (2.1) >	6 (0.7) >	0 (0.3)
Idaho	34 (3.5)	266 (1.1) >	98 (0.6)	71 (1.8)	13 (1.1)	0 (0.2)
Indiana	32 (3.6)	254 (1.6)	95 (1.3)	55 (2.4)	9 (1.1)	0 (0.3)
Iowa	33 (4.6)	272 (1.1) >	99 (0.4)	76 (1.8)	19 (1.6)	0 (0.2)
Kentucky	36 (4.6)	250 (1.1)	93 (1.2)	50 (1.7)	7 (0.9)	0 (0.1)
Louisiana	32 (4.2)	229 (2.1)	83 (2.3)	25 (2.3)	1 (0.5)	0 (0.0)
Maine	37 (4.7)	269 (1.1)	98 (0.9)	74 (1.6)	17 (1.6)	0 (0.4)
Maryland	34 (3.4)	241 (2.6)	88 (2.0)	40 (3.0)	4 (1.1)	0 (0.1)
Massachusetts	33 (3.3)	251 (1.7)	94 (1.4)	52 (3.0)	6 (1.0)	0 (0.1)
Michigan	33 (3.4)	242 (1.9)	89 (1.3)	41 (2.7)	4 (0.9)	0 (0.1)
Minnesota	33 (5.5)	272 (1.1) »	98 (0.5)	74 (1.9)	20 (1.6) >	0 (0.2)
Mississippi	33 (2.9)	228 (1.1)	81 (1.6)	23 (1.4)	2 (0.5)	0 (0.0)
Missouri	34 (4.8)	257 (2.0)	96 (1.1)	60 (2.8)	9 (1.2)	0 (0.1)
Nebraska	39 (4.7)	266 (1.3) >	97 (0.7)	70 (1.8)	15 (1.3)	0 (0.3)
New Hampshire	35 (4.1)	268 (1.0) »	98 (0.7)	75 (1.5) >	13 (1.3)	0 (0.1)
New Jersey	34 (4.1)	245 (3.2)	92 (1.7)	44 (4.3)	4 (1.6)	0 (0.0)
New Mexico	29 (3.3)	245 (1.2) >	93 (1.4)	44 (1.8)	4 (1.0)	0 (0.0)
New York	39 (4.8)	241 (3.9)	85 (2.9)	42 (4.4)	6 (1.3)	0 (0.1)
North Carolina	33 (4.9)	244 (1.5) »	90 (1.3)	43 (2.1) >	5 (1.0)	0 (0.1)
North Dakota	37 (4.3)	275 (1.4) »	100 (0.4)	82 (2.0)	18 (1.6)	0 (0.2)
Ohio	31 (4.4)	246 (2.1)	91 (1.6)	45 (2.6)	5 (0.8)	0 (0.1)
Oklahoma	35 (5.0)	255 (1.5) >	95 (1.0)	57 (2.3) >	7 (1.1)	0 (0.2)
Pennsylvania	33 (4.0)	253 (2.1)	94 (1.5)	54 (2.8)	7 (0.9)	0 (0.0)
Rhode Island	32 (0.1) «	247 (1.4)	91 (1.2)	46 (2.9)	5 (1.4)	0 (0.1)
South Carolina	33 (3.7)	244 (1.2)	92 (1.3)	42 (2.1)	5 (0.8)	0 (0.1)
Tennessee	33 (4.6)	243 (1.8)	91 (1.5)	41 (2.4)	4 (0.8)	0 (0.0)
Texas	33 (4.0)	246 (1.1) >	92 (1.2)	45 (1.9)	6 (1.0)	0 (0.2)
Utah	35 (4.3)	265 (0.8)	98 (0.5)	68 (1.6)	15 (1.8)	0 (0.1)
Virginia	34 (4.2)	248 (1.2) >	94 (0.8)	48 (2.4)	4 (0.8)	0 (0.1)
West Virginia	33 (5.0)	248 (1.1) >	95 (1.2)	48 (2.1)	5 (0.9)	0 (0.0)
Wisconsin	31 (4.3)	261 (2.3)	96 (1.0)	65 (3.1)	12 (1.4)	0 (0.1)
Wyoming	29 (3.4)	265 (1.8)	98 (0.7)	69 (2.7)	13 (1.9)	0 (0.2)
TERRITORIES						
Guam	45 (0.3)	229 (1.8)	76 (2.1)	29 (2.4)	4 (0.8)	0 (0.2)
Virgin Islands	52 (0.1) »	214 (1.3) >	67 (3.0)	13 (1.4)	0 (0.2)	0 (0.0)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated. (xxx) Did not participate in the 1990 Trial State Assessment.

TABLE A.15 | Average Mathematics Proficiency and Anchor Levels for the Bottom One-Third of the Schools (continued)

PUBLIC SCHOOLS	Grade 8 - 1990					
	Percentage of Students	Average Proficiency	Percentage of Students At or Above Level 200	Percentage of Students At or Above Level 250	Percentage of Students At or Above Level 300	Percentage of Students At or Above Level 350
NATION	35 (4.2)	243 (1.8)	89 (1.8)	42 (1.9)	5 (0.9)	0 (0.1)
Northeast	24(11.6)	248 (6.0)!	91 (4.8)!	46 (5.7)!	8 (2.7)!	0 (0.0)!
Southeast	63 (9.4)	245 (2.8)	90 (2.9)	44 (2.7)	6 (1.1)	0 (0.1)
Central	22 (4.8)	236 (3.7)!	87 (3.9)!	34 (4.0)!	2 (1.5)!	0 (0.0)!
West	31 (7.5)	243 (3.7)!	87 (3.1)!	42 (4.4)!	6 (1.9)!	0 (0.0)!
STATES						
Alabama	34 (4.3)	237 (1.3)	87 (1.4)	34 (2.1)	3 (0.8)	0 (0.2)
Arizona	33 (4.0)	241 (1.8)	89 (1.8)	39 (2.6)	4 (1.0)	0 (0.1)
Arkansas	36 (3.5)	242 (1.4)	92 (1.4)	39 (1.7)	3 (0.9)	0 (0.1)
California	33 (4.0)	236 (1.7)	85 (1.6)	34 (2.4)	4 (0.9)	0 (0.1)
Colorado	33 (3.1)	252 (1.6)	94 (0.9)	53 (2.2)	7 (1.1)	0 (0.2)
Connecticut	37 (3.5)	250 (1.4)	92 (1.2)	51 (2.1)	8 (1.0)	0 (0.1)
Delaware	43 (0.3)	250 (1.2)	92 (1.3)	50 (1.7)	6 (1.0)	0 (0.0)
Dist. Columbia	38 (0.3)	219 (1.1)	75 (2.1)	13 (1.2)	0 (0.1)	0 (0.0)
Florida	33 (4.0)	239 (1.6)	87 (1.4)	38 (1.9)	4 (0.8)	0 (0.0)
Georgia	36 (4.6)	243 (1.1)	90 (1.3)	42 (1.7)	5 (0.6)	0 (0.1)
Hawaii	32 (0.2)	234 (1.3)	83 (1.6)	34 (1.9)	3 (0.8)	0 (0.2)
Idaho	29 (0.8)	261 (1.7)	97 (1.2)	64 (2.8)	10 (1.5)	0 (0.0)
Indiana	34 (4.3)	254 (1.7)	96 (1.2)	54 (2.3)	7 (1.0)	0 (0.2)
Iowa	38 (5.1)	268 (1.1)	99 (0.6)	72 (1.5)	15 (1.2)	0 (0.3)
Kentucky	36 (4.8)	246 (1.4)	93 (1.1)	43 (2.2)	7 (0.8)	0 (0.1)
Louisiana	34 (3.2)	229 (1.4)	83 (1.7)	23 (2.1)	1 (0.4)	0 (0.0)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	35 (3.3)	239 (1.6)	88 (1.6)	37 (2.5)	4 (0.8)	0 (0.0)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	34 (4.2)	244 (1.9)	92 (1.1)	45 (2.9)	3 (0.8)	0 (0.1)
Minnesota	36 (4.4)	265 (1.3)	97 (0.9)	69 (1.7)	14 (1.4)	1 (0.5)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	36 (3.2)	261 (1.3)	96 (1.2)	65 (2.2)	11 (1.0)	0 (0.2)
New Hampshire	36 (0.9)	262 (1.5)	97 (0.8)	65 (3.3)	10 (1.6)	0 (0.1)
New Jersey	32 (3.7)	246 (2.7)	93 (1.7)	42 (3.5)	5 (1.2)	0 (0.0)
New Mexico	28 (0.8)	241 (1.0)	91 (1.4)	38 (1.9)	2 (0.6)	0 (0.0)
New York	40 (3.6)	239 (2.3)	87 (2.1)	37 (2.6)	6 (1.2)	0 (0.1)
North Carolina	35 (3.9)	236 (1.1)	86 (1.5)	34 (1.7)	3 (0.6)	0 (0.0)
North Dakota	29 (2.7)	267 (1.6)	97 (0.9)	74 (3.0)	14 (2.0)	1 (0.6)
Ohio	34 (3.6)	248 (1.2)	93 (1.0)	47 (2.4)	6 (0.9)	0 (0.1)
Oklahoma	33 (4.4)	249 (1.5)	94 (1.3)	50 (1.9)	4 (1.0)	0 (0.0)
Pennsylvania	36 (4.2)	249 (2.2)	92 (1.4)	50 (3.1)	7 (1.6)	0 (0.1)
Rhode Island	40 (0.8)	244 (0.8)	90 (0.8)	43 (1.3)	6 (0.9)	0 (0.1)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	32 (4.5)	241 (2.0)	90 (2.0)	38 (2.4)	4 (0.9)	0 (0.0)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	33 (3.7)	244 (1.3)	93 (1.1)	42 (2.2)	3 (0.8)	0 (0.0)
West Virginia	32 (3.9)	245 (0.8)	93 (1.2)	43 (1.9)	4 (0.8)	0 (0.1)
Wisconsin	35 (4.0)	259 (2.0)	96 (1.2)	61 (2.7)	10 (1.0)	0 (0.2)
Wyoming	35 (0.7)	264 (1.1)	98 (0.5)	69 (1.9)	11 (1.1)	0 (0.1)
TERRITORIES						
Guam	45 (0.2)	227 (1.2)	74 (1.7)	27 (2.2)	3 (0.5)	0 (0.2)
Virgin Islands	50 (0.2)	209 (1.3)	64 (1.8)	8 (1.5)	0 (0.2)	0 (0.0)

(xxx) Did not participate in the 1990 Trial State Assessment.

Summary

The anchor-level results indicate that more fourth graders in 1992 than in 1990 could compute and solve simple word problems involving whole numbers (Levels 200 and 250). The percentage estimated to have demonstrated success with problems involving addition and subtraction increased from 67 to 72 percent, and the percentage showing some understanding of all four operations and success in solving problems in two-step situations increased from 12 to 17 percent.

At grade 8, students showed particular improvement at Level 300, typified by an understanding of fractions, decimals, and percents as well as beginning concepts in geometry, statistics, and algebra. The percentage estimated to be at or above this level rose from 15 to 20 percent. However, the percentage showing less mathematical understanding (Level 250 -- whole number addition, subtraction, multiplication, and division) was estimated to have remained at about two-thirds, and few showed any sophistication with geometry or algebra (Level 350).

Twelfth graders improved their performance in the mid-ranges of the scale, but not at the upper end. The already substantial proportion demonstrating a grasp of the four operations with whole numbers (Level 250) was estimated to have increased from 88 to 91 percent, and the percentage showing some mathematical understanding beyond operations with whole numbers rose from an estimated 45 to 50 percent. Yet, the percentage estimated to have shown any depth of mathematical sophistication remained virtually the same -- 6 percent.

At grade 4, the results for the various participating jurisdictions tended to parallel the national results, within some reasonable bounds of variation for the higher- and lower-performing entities. At grade 8, however, there was considerable range of performance across the participants. For example, it was estimated that more than one-fourth of the eighth graders in Iowa, Minnesota, North Dakota, and Wisconsin performed at or above Level 300. In contrast, fewer than 10 percent were estimated to have done so in Alabama, Arkansas, the District of Columbia, Louisiana, Mississippi, West Virginia, Guam, and the Virgin Islands.

For jurisdictions participating in both the 1992 and 1990 eighth-grade assessments, a number of increases were found across anchor levels. North Carolina showed gains at three levels: 200, 250, and 300. Several other states showed improvements at two levels, including Hawaii and Rhode Island at

Levels 200 and 250 as well as Colorado, Iowa, and Minnesota at Levels 250 and 300. Additionally, the District of Columbia, Kentucky, New Hampshire, and Oklahoma showed gains at Level 250, while New York and Texas improved at Level 300.

Despite the general pattern of improvement between the 1990 and 1992 assessments, the national results across demographic groups indicated that a number of large disparities persist, particularly between Asian/Pacific Islander and White students as compared to their American Indian, Black, and Hispanic counterparts, between students attending advantaged urban schools and those attending disadvantaged urban schools, and between students attending public and private schools at grades 8 and 12. Most striking was the discrepancy between performance for students in the top-performing one-third of the schools as compared to those in the bottom-performing one-third of the schools. In 1992, high-school seniors in the bottom one-third performing schools appeared to be less mathematically proficient than eighth graders in the top one-third performing schools. It was estimated that only about one-fourth of these students, about to graduate from high school, showed a consistent grasp of mathematics that included fractions, decimals, and percents as well as elementary concepts in geometry, statistics, and algebra.

APPENDIX B

Guidelines for Sample Participation and Explanation of Derivation of Weighted Participation

Introduction

Since 1989, state representatives, the National Assessment Governing Board (NAGB), several committees of external advisors to the National Assessment of Educational Progress (NAEP), and the National Center for Education Statistics (NCES) have engaged in numerous discussions about the procedures for reporting the NAEP Trial State Assessment results. As part of these discussions, it was recognized that sample participation rates across the states and territories have to be uniformly high to permit fair and valid comparisons. Therefore, NCES established four guidelines for school and student participation in the 1990 Trial State Assessment Program.

The participation rate data were presented in the appendix of the 1990 composite mathematics report (*The State of Mathematics Achievement*) and a notation was made in those appendix tables and in Table 2 of the appropriate state report for any jurisdiction with participation levels that did not meet the guidelines. Virtually every state and territory met or exceeded the four guidelines for the 1990 program.

For the 1992 Trial State Assessment, NCES has decided to continue to use those four guidelines, two relating to school participation and two relating to student participation. The guidelines are based on the standards for sample surveys that are set forth in the U.S. Department of Education's *Standards and Policies* (1987). Three of the guidelines for the 1992 program are identical to those used in 1990, while one guideline for school participation has been modified.

NCES and NAGB have reviewed the policy of how participation rates can best be presented so that readers of reports can accurately assess the quality of the data being reported. They have decided that for reporting the results from the 1992 Trial State Assessment Program, tables again will have notations for the jurisdictions not meeting each guideline. They also have decided that there will be a fuller discussion in the body of the 1992 composite reports about the participation rates and nature of the samples for each of the participating jurisdictions.

The next section or this report provides an explanation of the guidelines and notations. In brief, the guidelines cover levels of school and student participation, both overall and for particular population classes. Consistent with the NCES standards, weighted data must be used to calculate all participation rates for sample surveys, and weighted rates will be provided in the reports. The procedures used to derive the weighted school and student participation rates are provided immediately after the discussion of the guidelines and notations.

The final section of this appendix consists of a set of tables that provide the participation rate information for the 1992 Trial State mathematics assessment. Because the aggregate across all states is not representative of any meaningful sample, the weighted participation rates across states have not been analyzed. However, the national and regional counts from the national assessment have been included and do provide some context for interpreting the summary of activities in each individual state and territory.

Notations for Use in Reporting School and Student Participation Rates

Unless the overall participation rate is high for a state or territory, there is a risk that the assessment results for that jurisdiction are subject to appreciable nonresponse bias. Moreover, even if the overall participation rate is high, there may be significant nonresponse bias if the nonparticipation that does occur is heavily concentrated among certain classes of schools or students.

The following notations concerning school and student participation rates in the Trial State Assessment Program were established to address four significant ways in which nonresponse bias could be introduced into the jurisdiction sample estimates. The four conditions that will result in a state or territory receiving a notation in the 1992 reports are presented below. Note that in order to receive no notations, a state or territory must satisfy all the guidelines at both grade 4 and grade 8.

A jurisdiction will receive a notation if:

1. Both the state's weighted participation rate for the initial sample of schools was below 85 percent AND the weighted school participation rate after substitution was below 90 percent; OR the weighted school participation rate of the initial sample of schools was below 70 percent (regardless of the participation rate after substitution.)

Discussion: For states or territories that did not use substitute schools, the participation rates are based on participating schools from the original sample. In these situations, the NCES standards specify weighted school participation rates of at least 85 percent to guard against potential bias due to school nonresponse. Thus, the first part of the notation that refers to the weighted school participation rate for the initial sample of schools is in direct accordance with NCES standards.

To help ensure adequate sample representation for each jurisdiction participating in the 1992 Trial State Assessment Program, NAEP provided substitutes for nonparticipating schools. When possible, a substitute school was provided for each initially selected school that declined participation before November 15, 1991. For states or territories that used substitute schools, the assessment results will be based on the student data from all participating schools from both the original sample and the list of substitutes (unless both an initial school and its substitute eventually participated, in which case only the data from the initial school will be used).

The NCES standards do not explicitly address the use of substitute schools to replace initially selected schools that decide not to participate in the assessment. However, considerable technical consideration was given to this issue. Even though the characteristics of the substitute schools were matched as closely as possible to the characteristics of the initially selected schools, substitution does not entirely eliminate bias due to the nonparticipation of initially selected schools. Thus, for the weighted school participation rates including substitute schools, the guideline was set at 90 percent.

Finally, if the jurisdiction's school participation rate for the initial sample of schools is below 70 percent, even if the rate after substitution exceeds 90 percent, there is a substantial possibility that, in aggregate, the substitute schools are not sufficiently similar to the schools that they replaced to assure that there is negligible bias in the assessment results. The last part of the notation takes this into consideration.

A jurisdiction will receive a notation if:

2. The nonparticipating schools included a class of schools with similar characteristics, which together accounted for more than five percent of the state's total fourth- or eighth-grade weighted sample of public schools. The classes of schools from each of which a state needed minimum school participation levels were determined by urbanicity, minority enrollment, and median household income of the area in which the school is located.

Discussion: The NCES standards specify that attention should be given to the representativeness of the sample coverage. Thus, if some important segment of the jurisdiction's population is not adequately represented, it is of concern, regardless of the overall participation rate.

This notation addresses the fact that, if nonparticipating schools are concentrated within a particular class of schools, the potential for substantial bias remains, even if the overall level of school participation appears to be satisfactory. Nonresponse adjustment cells have been formed within each jurisdiction, and the schools within each cell are similar with respect to minority enrollment, urbanicity, and/or median household income, as appropriate for each jurisdiction.

If more than five percent (weighted) of the sampled schools (after substitution) are nonparticipants from a single adjustment cell, then the potential for nonresponse bias is too great. This guideline is based on the NCES standard for stratum-specific school nonresponse rates.

A jurisdiction will receive a notation if:

3. **The weighted student response rate within participating schools was below 85 percent.**

Discussion: This guideline follows the NCES standard of 85 percent for overall student participation rates. The weighted student participation rate is based on all eligible students from initially selected or substitute schools who participated in the assessment in either an initial session or a make-up session. If the rate falls below 85 percent, then the potential for bias due to students' nonresponse is too great.

A jurisdiction will receive a notation if:

4. The nonresponding students within participating schools included a class of students with similar characteristics, who together comprised more than five percent of the state's weighted assessable student sample. Student groups from which a state needed minimum levels of participation were determined by age of student and type of assessment session (unmonitored or monitored), as well as school urbanicity, minority enrollment, and median household income of the area in which the school is located.

Discussion: This notation addresses the fact that if nonparticipating students are concentrated within a particular class of students, the potential for substantial bias remains, even if the overall student participation level appears to be satisfactory. Student nonresponse adjustment cells have been formed using the school-level nonresponse adjustment cells, together with the student's age and the nature of the assessment session (unmonitored or monitored). If more than five percent (weighted) of the invited students who do not participate in the assessment are from a single adjustment cell, then the potential for nonresponse bias is too great. This guideline is based on the NCES standard for stratum-specific student nonresponse rates.

Derivation of Weighted Participation Rates

Weighted School Participation Rates. The weighted school participation rates within each state or territory provide the percentages of fourth- or eighth-grade students in public schools who are represented by the schools participating in the assessment, prior to statistical adjustments for school nonresponse.

Two weighted school participation rates are computed per subject per grade for each state and territory. The first is the weighted participation rate for the initial sample of schools. This rate is based only on those schools that were initially selected for the assessment. The numerator of this rate is the sum of the number of students represented by each initially selected school that participated in the assessment. The denominator is the sum of the number of students represented by each of the initially selected schools found to have eligible students enrolled. This includes both participating and nonparticipating schools.

The second participation rate is the weighted participation rate after substitution. The numerator of this rate is the sum of the number of students represented by each of the participating schools, whether originally selected or a substitute. The denominator is the same as that for the weighted participation rate for the initial sample. This means that, for a given state, grade, and subject, the weighted participation rate after substitution is always at least as great as the weighted participation rate for the initial sample of schools.

In general, different schools in the sample can represent different numbers of students in the state population. The number of students represented by an initially selected school (the school weight) is the fourth- or eighth-grade enrollment of the school divided by the probability that the school was included in the sample. For instance, a selected school with an eighth-grade enrollment of 150 and a selection probability of 0.2 represents 750 students from that state. The number of students represented by a substitute school is the number of students represented by the replaced nonparticipating school.

Because each selected school represents different numbers of students in the population, the weighted school participation rates may differ somewhat from the simple unweighted rates. (The unweighted rates are calculated from the counts of school by dividing the number of participating schools by the number of schools in the sample.) The difference between the weighted and the unweighted rates is potentially largest in smaller jurisdictions where all schools with fourth- or eighth-grade students were included in the sample. In those jurisdictions, each school represents only its own students. Therefore, the nonparticipation of a large school reduces the weighted school participation rate by a greater amount than does the nonparticipation of a small school.

The nonparticipation of larger schools also has greater impact than that of smaller schools on reducing weighted school participation rates in larger jurisdictions where fewer than all of the schools were included in the sample. However, since the number of students represented by each school is more nearly constant in larger states, the difference between the impact of nonparticipation by either large or small schools is less marked than in states where all schools were selected.

In general, the larger the jurisdiction, the less the difference is between the weighted and unweighted school participation rates. However, even in the smaller jurisdictions, the differences tend to be small.

Weighted Student Participation Rate. The weighted student participation rate provides the percentage of the eligible student population from participating schools within the state or territory that are represented by the students who participated in the assessment (in either an initial session or a make-up session). The eligible student population from participating schools within a jurisdiction consists of all public-school students who were in the fourth grade or eighth grade, who attended a school that, if selected, would have participated and who, if selected, would not have been excluded from the assessment. The numerator of this rate is the sum, across all assessed students, of the number of students represented by each assessed student (prior to adjustment for student nonparticipation). The denominator is the sum of the number of students represented by each selected student who was invited and eligible to participate (i.e., not excluded), including students who did not participate. Thus, the denominator is an estimate of the total number of assessable students in the group of schools within the jurisdiction that would have participated if selected.

The number of students represented by a single selected student (the student weight) is 1.0 divided by the overall probability that the student was selected for assessment. In general, the number of students from a jurisdiction's population that are represented by a sampled student is approximately constant across students. Consequently, there is little difference between the weighted student participation rate and the unweighted student participation rate.

Weighted Overall School and Student Participation Rate. An overall indicator of the effect of nonparticipation by both students and schools is given by the overall participation rate. This is calculated as the product of the weighted school participation rate (after substitution), and the weighted student participation rate. For jurisdictions having a high overall participation rate the potential is low for bias to be introduced through either school nonparticipation or student nonparticipation. This rate provides a summary measure that indicates the proportion of the jurisdiction's fourth- or eighth-grade student population that is directly represented by the final student sample. When the overall rate is high, the adjustments for nonresponse that are used in deriving the final survey weights are likely to be effective in maintaining nonresponse bias at a negligible level. Conversely, when the overall rate is relatively low there is a greater chance that a nonnegligible bias remains even after making such adjustments.

The overall rate is not used in establishing the guidelines/notations for school and student participation, since guidelines exist already covering school and student participation separately. The overall participation rate was not reported in 1990.

Derivation of Weighted Percentages for Excluded Students

Weighted Percentage of Excluded Students. The weighted percentage of excluded students estimates the percentage of the fourth- or eighth-grade population in the jurisdiction's public schools that are represented by the students who were excluded from the assessment, after accounting for school nonparticipation. The numerator is the sum, across all excluded students, of the number of students represented by each excluded student. The denominator is the sum of the number of students represented by each of the students who was sampled (and had not withdrawn from the school at the time of the assessment).

Weighted Percentage of Students with an Individualized Education Plan (IEP). The weighted percentage of IEP students estimates the percentage of the fourth- or eighth-grade population in the jurisdiction's public schools that are represented by the students who were classified as IEP, after accounting for school nonparticipation. The numerator is the sum, across all students classified as IEP, of the number of students represented by each IEP student. The denominator is the sum of the number of students represented by each of the students who was sampled (and had not withdrawn from the school at the time of the assessment).

Weighted Percentage of Excluded IEP Students. The weighted percentage of IEP students who were excluded estimates the percentage of students in the jurisdiction that are represented by those IEP students who were excluded from the assessment, after accounting for school nonparticipation. The numerator is the sum, across all students classified as IEP and excluded from the assessment, of the number of students represented by each excluded IEP student. The denominator is the sum of the number of students represented by each of the IEP students who was sampled (and had not withdrawn from the school at the time of the assessment).

Weighted Percentage of Limited English Proficiency (LEP) Students. The weighted percentage of LEP students estimates the percentage of the fourth- or eighth-grade population in the jurisdiction's public schools that are represented by the students who were classified as LEP, after accounting for school nonparticipation. The numerator is the sum, across all students classified as LEP, of the number of students represented by each LEP student. The denominator is the sum of the number of students represented by each of the students who was sampled (and had not withdrawn from the school at the time of the assessment).

Weighted Percentage of Excluded LEP Students. The weighted percentage of LEP students who were excluded estimates the percentage of students in the jurisdiction that are represented by those LEP students who were excluded from the assessment, after accounting for school nonparticipation.

TABLE B.1 | School Participation Rates

PUBLIC SCHOOLS	Grade 4 - 1992							
	Weighted Percentage School Participation Before Substitution	Weighted Percentage School Participation After Substitution	Number Schools in Original Sample	Number Schools Not Eligible	Number Schools in Original Sample that Participated	Number Substitute Schools Provided	Number Substitute Schools that Participated	Total Number Schools that Participated
NATION	86	86	313	4	268	7	2	270
Northeast	82	82	59	0	49	1	0	49
Southeast	94	94	81	1	76	1	1	77
Central	92	92	68	1	62	0	0	62
West	79	79	105	2	81	5	1	82
STATES								
Alabama	75	97	113	3	81	27	25	106
Arizona	100	100	110	2	108	0	0	108
Arkansas[4]	90	99	123	2	109	11	11	120
California	91	97	115	3	101	7	7	108
Colorado	100	100	123	2	121	0	0	121
Connecticut	99	99	115	4	110	0	0	110
Delaware[2,3]	92	92	56	6	44	0	0	44
Dist. Columbia	99	99	114	5	107	0	0	107
Florida	100	100	111	1	110	0	0	110
Georgia	100	100	110	2	108	0	0	108
Hawaii	100	100	108	0	108	0	0	108
Idaho	84	97	120	0	98	21	17	115
Indiana	76	91	118	2	88	26	17	105
Iowa	100	100	132	4	128	0	0	128
Kentucky[4]	93	96	124	3	115	3	3	118
Louisiana	100	100	113	4	109	0	0	109
Maine[1,2,4,5]	57	71	142	2	75	44	23	98
Maryland	99	99	112	1	110	1	0	110
Massachusetts	87	97	123	4	103	12	11	114
Michigan[4]	83	90	114	3	90	16	8	98
Minnesota[5]	82	94	118	5	93	16	14	107
Mississippi	98	100	111	2	107	2	2	109
Missouri	89	97	120	7	101	9	9	110
Nebraska[1,2]	80	87	157	6	109	36	11	120
New Hampshire[1,2,4,5]	69	80	126	3	84	36	20	104
New Jersey[1,2]	76	82	119	3	88	22	7	95
New Mexico[4,5]	75	90	116	2	86	30	22	108
New York[1,2,4]	78	83	107	0	83	21	7	90
North Carolina[4]	95	99	118	2	111	5	5	116
North Dakota	73	90	133	3	97	30	19	116
Ohio	79	91	122	1	95	21	15	110
Oklahoma	86	98	129	3	111	14	13	124
Pennsylvania	84	95	116	0	99	17	12	111
Rhode Island	83	96	115	5	90	15	15	105
South Carolina	98	99	112	2	108	1	1	109
Tennessee	92	93	120	2	108	8	1	109
Texas	93	98	111	3	100	5	5	105
Utah	99	99	110	1	108	0	0	108
Virginia	99	99	116	4	111	0	0	111
West Virginia	100	100	147	6	141	0	0	141
Wisconsin	100	100	127	5	122	0	0	122
Wyoming	97	97	157	11	143	0	0	143
TERRITORY								
Guam[2,3]	94	94	21	0	20	0	0	20

See explanations of the notations and guidelines about sample representativeness and for the derivation of weighted participation. Weighted percentages for the nation and region are based on schools sampled for all subject areas assessed in 1990 (reading, science, and mathematics) or 1992 (mathematics, reading, and writing). However, based on the national sampling design, the rates shown also are the best estimates for the mathematics assessment. [1]Both the state's weighted participation rate for the initial sample of schools was below 85% AND the weighted school participation rate after substitution was below 90%; OR the weighted school participation rate of the initial sample of schools was below 70% (regardless of the participation rate after substitution.) [2]The nonparticipating schools included a class of schools with similar characteristics, which together accounted for more than five percent of the state's total fourth- or eighth-grade weighted sample of public schools. The classes of schools from each of which a state needed minimum school participation levels were determined by urbanicity, minority enrollment, and median household income of the area in which the school is located.

TABLE B.1 | School Participation Rates (continued)

PUBLIC SCHOOLS	Grade 8 - 1992							
	Weighted Percentage School Participation Before Substitution	Weighted Percentage School Participation After Substitution	Number Schools in Original Sample	Number Schools Not Eligible	Number Schools in Original Sample that Participated	Number Substitute Schools Provided	Number Substitute Schools that Participated	Total Number Schools that Participated
NATION	88	89	248	1	216	4	3	219
Northeast	92	92	45	0	41	0	0	41
Southeast	94	94	62	0	57	0	0	57
Central	86	87	61	1	52	1	1	53
West	82	84	80	0	66	3	2	68
STATES								
Alabama[1 5]	66	92	107	1	70	37	32	102
Arizona[4]	99	99	109	5	103	0	0	103
Arkansas[4]	89	97	101	1	89	10	8	97
California[5]	93	98	107	2	98	7	6	104
Colorado	100	100	113	1	112	0	0	112
Connecticut	99	99	101	3	97	0	0	97
Delaware[3]	100	100	30	2	28	0	0	28
Dist. Columbia[3]	100	100	37	2	35	0	0	35
Florida	100	100	107	4	103	0	0	103
Georgia[4]	99	99	106	4	102	0	0	102
Hawaii[3]	100	100	57	5	51	0	0	51
Idaho[2 5]	85	91	82	1	67	12	7	74
Indiana[4]	79	94	107	0	85	21	17	102
Iowa	99	99	109	3	105	0	0	105
Kentucky	96	98	112	6	102	3	2	104
Louisiana	100	100	109	8	101	0	0	101
Maine[1 2 5]	62	84	100	0	60	33	22	82
Maryland[4]	89	91	104	1	93	9	2	95
Massachusetts	83	95	109	7	85	12	12	97
Michigan	78	94	108	1	83	22	18	101
Minnesota	81	92	104	3	82	15	11	93
Mississippi	99	100	102	3	98	1	1	99
Missouri	92	99	107	1	98	7	7	105
Nebraska[1]	75	85	122	10	73	34	12	85
New Hampshire[5]	80	92	78	1	62	14	11	73
New Jersey[1 2]	69	78	108	2	75	27	9	84
New Mexico[5]	77	94	93	1	69	22	16	85
New York[1 5]	81	83	108	4	84	19	3	87
North Carolina	94	98	108	3	99	4	4	103
North Dakota	78	97	80	6	55	16	15	70
Ohio[4]	77	90	110	0	85	20	14	99
Oklahoma	82	98	110	3	88	17	17	105
Pennsylvania[5]	81	94	107	2	84	21	15	99
Rhode Island[3]	85	100	57	5	44	7	7	51
South Carolina	94	97	105	0	99	4	3	102
Tennessee	87	91	106	2	91	10	4	95
Texas	95	99	107	3	99	5	4	103
Utah	100	100	88	3	85	0	0	85
Virginia	97	97	108	2	103	0	0	103
West Virginia	100	100	108	4	104	0	0	104
Wisconsin	100	100	109	2	107	0	0	107
Wyoming	99	99	66	11	54	0	0	54
TERRITORIES								
Guam[3]	100	100	6	0	6	0	0	6
Virgin Islands[3]	100	100	6	0	6	0	0	6

[3] The Trial State Assessment was based on all eligible schools. There was no sampling of schools. [4] In one or more schools an assessment was conducted, but either the wrong materials were sent to the school(s) or the materials were lost in shipping via the U.S. Postal Service. The school(s) are included in the counts of participating schools, both before and after substitution. However, in the weighted results, the school(s) are treated in the same manner as a nonparticipating school because no student responses were available for analysis and reporting.

TABLE B.1 | **School Participation Rates (continued)**

PUBLIC SCHOOLS	Grade 8 - 1990							
	Weighted Percentage School Participation Before Substitution	Weighted Percentage School Participation After Substitution	Number Schools in Original Sample	Number Schools Not Eligible	Number Schools in Original Sample that Participated	Number Substitute Schools Provided	Number Substitute Schools that Participated	Total Number Schools that Participated
NATION	88	92	145	13	117	15	3	120
Northeast	72	90	25	3	17	5	2	19
Southeast	94	94	40	1	35	4	0	35
Central	94	94	31	4	26	1	0	26
West	88	90	49	5	39	5	1	40
STATES								
Alabama	86	97	106	5	87	13	11	98
Arizona[4]	97	97	110	7	102	0	0	102
Arkansas	100	100	107	0	107	0	0	107
California	94	94	106	2	98	0	0	98
Colorado	100	100	107	2	105	0	0	105
Connecticut	100	100	108	5	103	0	0	103
Delaware[3]	100	100	30	0	30	0	0	30
Dist. Columbia[3]	100	100	36	0	36	0	0	36
Florida[4]	98	98	108	6	101	0	0	101
Georgia	100	100	109	3	106	0	0	106
Hawaii[3]	100	100	57	4	52	0	0	52
Idaho	97	97	108	2	101	4	0	101
Indiana[4]	89	94	105	1	92	9	6	98
Iowa[2]	91	91	108	7	92	9	0	92
Kentucky	100	100	112	8	104	0	0	104
Louisiana	100	100	108	9	99	0	0	99
Maine	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Maryland	100	100	107	2	105	0	0	105
Massachusetts	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Michigan	90	97	105	4	90	9	8	98
Minnesota	90	93	108	3	94	5	3	97
Mississippi	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Missouri	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Nebraska	87	94	121	8	94	10	9	103
New Hampshire	91	97	107	3	94	4	4	98
New Jersey	97	98	112	3	106	2	1	107
New Mexico	100	100	108	2	106	0	0	106
New York[4]	86	86	105	0	91	0	0	91
North Carolina	100	100	111	5	106	0	0	106
North Dakota	96	100	111	5	98	8	8	106
Ohio	96	98	105	2	99	4	2	101
Oklahoma	78	99	112	0	85	26	23	108
Pennsylvania	90	93	106	4	92	4	3	95
Rhode Island[3]	94	97	52	0	49	2	2	51
South Carolina	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Tennessee	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Texas[5]	88	97	107	4	92	10	9	101
Utah	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Virginia	99	99	106	1	104	0	0	104
West Virginia	100	100	107	6	101	0	0	101
Wisconsin[4]	99	99	109	3	106	0	0	106
Wyoming	100	100	69	0	69	0	0	69
TERRITORIES								
Guam[3]	100	100	7	1	6	0	0	6
Virgin Islands[3]	100	100	6	0	6	0	0	6

[5] One or more schools in the original sample initially declined and then decided to participate after their substitute(s) had also agreed to participate. Further, assessments were conducted in both the original and substitute schools. For these cases the substitute school is included in the number of substitute schools provided and in the number of substitute schools participating. The state's estimates will be based on the student responses from the original school only. (xxx) Did not participate in the 1990 Trial State Assessment.

TABLE B.2 | Student Participation Rates

PUBLIC SCHOOLS	Grade 4 - 1992								
	Weighted Percentage Student Participation After Make-ups	Number Students Original Sample	Number Students Supplemental Sample	Number Students Withdrawn	Number Students Excluded	Number Students to be Assessed	Number Students Assessed Initial Sessions	Number Students Assessed Make-ups	Total Number Students Assessed
NATION	94	6,582	--	--	584	5,998	5,639	2	5,641
Northeast	94	1,175	--	--	106	1,069	1,007	0	1,007
Southeast	93	1,981	--	--	133	1,848	1,733	0	1,733
Central	94	1,357	--	--	75	1,282	1,213	0	1,213
West	94	2,069	--	--	270	1,799	1,686	2	1,688
STATES									
Alabama	95	2,903	68	115	127	2,729	2,605	0	2,605
Arizona	95	3,133	152	232	154	2,899	2,752	10	2,762
Arkansas[4]	96	2,961	90	149	154	2,748	2,641	6	2,647
California	94	3,015	141	224	364	2,568	2,392	20	2,412
Colorado	95	3,244	124	152	166	3,050	2,893	13	2,906
Connecticut	96	2,959	68	118	196	2,713	2,596	4	2,600
Delaware	95	2,330	84	141	121	2,152	2,028	12	2,040
Dist. Columbia	93	2,914	66	148	255	2,577	2,386	13	2,399
Florida	95	3,267	202	214	273	2,982	2,818	10	2,828
Georgia	95	3,117	138	202	154	2,899	2,759	7	2,766
Hawaii	95	3,009	89	168	169	2,761	2,617	8	2,625
Idaho	97	2,983	90	100	102	2,871	2,777	7	2,784
Indiana	96	2,815	72	86	92	2,709	2,590	3	2,593
Iowa	96	3,001	54	74	98	2,883	2,759	11	2,770
Kentucky	96	2,970	109	156	99	2,824	2,690	13	2,703
Louisiana	95	3,113	102	155	122	2,938	2,776	16	2,792
Maine[3]	95	2,161	31	46	124	2,022	1,920	3	1,923
Maryland	96	3,170	103	175	126	2,972	2,842	2	2,844
Massachusetts	95	2,942	32	77	219	2,678	2,544	5	2,549
Michigan[4]	94	2,736	82	100	136	2,582	2,417	6	2,423
Minnesota[3]	95	2,924	39	60	104	2,799	2,666	3	2,669
Mississippi	97	3,023	89	159	146	2,807	2,709	3	2,712
Missouri	96	2,778	112	152	117	2,621	2,501	8	2,509
Nebraska	96	2,602	44	80	122	2,444	2,320	17	2,337
New Hampshire[3]	96	2,538	47	78	99	2,408	2,309	7	2,316
New Jersey	96	2,483	49	77	133	2,322	2,220	11	2,231
New Mexico[3]	95	2,874	50	184	188	2,552	2,436	0	2,436
New York	96	2,545	44	75	127	2,387	2,277	7	2,284
North Carolina	95	3,144	142	142	122	3,022	2,880	4	2,884
North Dakota	96	2,312	42	40	45	2,269	2,190	3	2,193
Ohio	95	2,962	84	113	166	2,767	2,632	5	2,637
Oklahoma[1]	84	2,936	110	149	215	2,682	2,250	4	2,254
Pennsylvania	96	3,015	55	90	112	2,868	2,729	11	2,740
Rhode Island	95	2,767	54	142	161	2,518	2,390	0	2,390
South Carolina	97	3,045	110	143	144	2,868	2,771	0	2,771
Tennessee	96	2,979	107	148	117	2,821	2,704	4	2,708
Texas	96	3,013	105	162	234	2,722	2,618	5	2,623
Utah	96	3,130	95	167	128	2,930	2,793	6	2,799
Virginia	95	3,105	130	146	163	2,926	2,777	9	2,786
West Virginia	96	3,068	72	92	134	2,914	2,782	4	2,786
Wisconsin	96	3,079	61	89	141	2,910	2,793	4	2,797
Wyoming	96	2,833	98	116	98	2,717	2,602	3	2,605
TERRITORY									
Guam	95	2,158	104	91	133	2,038	1,914	19	1,933

See explanations of the notations and guidelines about sample representativeness and for the derivation of weighted participation. Weighted percentages for the nation and region are based on schools sampled for all subject areas assessed in 1990 (reading, science, and mathematics) or 1992 (mathematics, reading, and writing). However, based on the national sampling design, the rates shown also are the best estimates for the mathematics assessment. [1]The weighted student response rate within participating schools was below 85 percent. Oklahoma, however, was the only state that required parental permission forms on a statewide basis. [3]The nonresponding students within participating schools included a class of students with similar characteristics, who together comprised more than five percent of the state's weighted assessable student sample. Student groups from which a state needed minimum levels of participation were determined by age of student and type of assessment session (unmonitored or monitored), as well as school urbanicity, minority enrollment, and median household income of the area in which the school is located.

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TABLE B.2 | **Student Participation Rates (continued)**

PUBLIC SCHOOLS	Grade 8 - 1992								
	Weighted Percentage Student Participation After Make-ups	Number Students Original Sample	Number Students Supplemental Sample	Number Students Withdrawn	Number Students Excluded	Number Students to be Assessed	Number Students Assessed Initial Sessions	Number Students Assessed Make-ups	Total Number Students Assessed
NATION	89	7,406	--	--	582	6,824	5,975	58	6,033
Northeast	89	1,321	--	--	100	1,221	1,041	20	1,061
Southeast	90	1,885	--	--	92	1,793	1,607	3	1,610
Central	89	1,672	--	--	103	1,669	1,392	6	1,398
West	88	2,528	--	--	287	2,241	1,935	29	1,964
STATES									
Alabama[3]	95	3,011	65	163	165	2,748	2,611	12	2,623
Arizona	93	3,089	181	280	178	2,812	2,565	52	2,617
Arkansas	94	2,978	84	169	176	2,717	2,540	16	2,556
California[3]	92	3,101	120	212	246	2,763	2,510	27	2,537
Colorado	93	3,199	126	183	136	3,006	2,773	26	2,799
Connecticut	94	3,029	71	125	192	2,783	2,590	23	2,613
Delaware	92	2,220	83	108	97	2,098	1,858	76	1,934
Dist. Columbia	85	2,517	79	234	225	2,137	1,692	124	1,816
Florida	91	3,073	184	246	199	2,812	2,515	34	2,549
Georgia	93	3,011	133	220	137	2,787	2,563	26	2,589
Hawaii	90	2,904	85	123	142	2,724	2,421	33	2,454
Idaho[3]	95	2,936	79	125	91	2,799	2,638	7	2,645
Indiana	94	3,000	49	89	140	2,820	2,645	14	2,659
Iowa	95	3,133	40	85	129	2,959	2,801	15	2,816
Kentucky	96	3,087	87	156	135	2,883	2,746	10	2,756
Louisiana	92	3,028	80	194	120	2,794	2,565	17	2,582
Maine[3]	93	2,838	32	48	124	2,698	2,512	8	2,520
Maryland	92	2,803	108	178	128	2,605	2,364	35	2,399
Massachusetts	94	2,909	24	93	217	2,623	2,439	17	2,456
Michigan	94	3,020	79	122	184	2,793	2,573	43	2,616
Minnesota	94	2,758	38	85	92	2,619	2,439	32	2,471
Mississippi	95	2,958	76	191	207	2,636	2,490	8	2,498
Missouri	95	2,984	124	165	128	2,815	2,641	25	2,666
Nebraska	96	2,543	31	74	108	2,392	2,283	2	2,285
New Hampshire[3]	94	2,958	49	96	156	2,755	2,562	20	2,582
New Jersey	94	2,506	50	80	169	2,307	2,160	14	2,174
New Mexico[3]	93	3,041	70	168	163	2,780	2,556	29	2,585
New York	92	2,581	44	85	193	2,347	2,131	27	2,158
North Carolina	94	3,071	114	147	102	2,936	2,759	10	2,769
North Dakota	96	2,513	33	65	63	2,418	2,305	9	2,314
Ohio	93	2,942	87	120	177	2,732	2,518	17	2,535
Oklahoma[4]	80	2,934	114	154	184	2,710	2,129	12	2,141
Pennsylvania[3]	94	2,964	32	63	127	2,806	2,611	29	2,640
Rhode Island	93	2,481	45	118	119	2,289	2,099	21	2,120
South Carolina	94	3,057	103	178	174	2,808	2,622	3	2,625
Tennessee	94	2,838	117	174	137	2,644	2,470	15	2,485
Texas	94	3,048	133	182	205	2,794	2,596	18	2,614
Utah	94	3,124	102	175	141	2,910	2,713	13	2,726
Virginia	94	3,091	103	169	153	2,872	2,690	20	2,710
West Virginia	94	3,097	43	119	178	2,843	2,675	15	2,690
Wisconsin	94	3,165	58	91	130	3,002	2,787	27	2,814
Wyoming	95	2,743	64	124	107	2,576	2,403	41	2,444
TERRITORIES									
Guam	90	1,734	56	51	72	1,667	1,491	5	1,496
Virgin Islands	92	1,708	39	60	86	1,601	1,410	69	1,479

[3] One or more schools in the original sample initially declined and then decided to participate after their substitute(s) had also agreed to participate. Further, assessments were conducted in both the original and substitute schools. For these cases, the students in the substitute school(s) are included in the counts of students in the table. The state's estimates will be based on the student responses from the original school only. [4] In one or more schools an assessment was conducted but the wrong materials were sent to the school(s). The students in these school(s) are included in the counts of students in the tables. However, the state's estimates will not be based on these student responses.

TABLE B.2 | Student Participation Rates (continued)

PUBLIC SCHOOLS	Grade 8 - 1990								
	Weighted Percentage Student Participation After Make-ups	Number Students Original Sample	Number Students Supplemental Sample	Number Students Withdrawn	Number Students Excluded	Number Students to be Assessed	Number Students Assessed Initial Sessions	Number Students Assessed Make-ups	Total Number Students Assessed
NATION	90	11,871	--	--	741	11,130	9,775	147	9,922
Northeast	91	1,922	--	--	96	1,826	1,622	11	1,633
Southeast	91	3,163	--	--	119	3,044	2,752	0	2,752
Central	91	2,491	--	--	219	2,272	2,017	22	2,039
West	88	4,295	--	--	307	3,988	3,384	114	3,498
STATES									
Alabama	95	2,908	99	186	162	2,659	2,511	20	2,531
Arizona	93	2,945	161	206	158	2,742	2,480	78	2,558
Arkansas	95	3,104	127	183	244	2,804	2,640	29	2,669
California	93	2,933	63	135	242	2,619	2,353	71	2,424
Colorado	94	3,074	103	192	142	2,843	2,632	43	2,675
Connecticut	95	3,085	58	115	213	2,815	2,646	26	2,672
Delaware	93	2,455	83	163	122	2,253	2,052	58	2,110
Dist. Columbia	88	2,758	72	237	156	2,437	2,017	118	2,135
Florida	92	3,005	148	209	200	2,744	2,475	59	2,534
Georgia	94	3,175	126	254	117	2,930	2,736	30	2,766
Hawaii	93	2,933	82	120	151	2,744	2,452	99	2,551
Idaho	96	2,941	90	123	78	2,830	2,707	9	2,716
Indiana	95	2,910	81	143	144	2,704	2,534	35	2,569
Iowa	96	2,714	40	73	104	2,577	2,462	12	2,474
Kentucky	95	3,068	88	179	158	2,819	2,660	20	2,680
Louisiana	94	2,949	108	204	130	2,723	2,544	28	2,572
Maine	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Maryland	94	3,151	82	115	152	2,966	2,732	62	2,794
Massachusetts	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Michigan	95	2,941	64	140	129	2,738	2,524	63	2,587
Minnesota	95	2,857	50	105	87	2,715	2,537	47	2,584
Mississippi	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Missouri	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Nebraska	95	2,766	58	93	84	2,647	2,497	22	2,519
New Hampshire	95	2,870	52	80	132	2,710	2,548	20	2,568
New Jersey	94	3,149	63	113	234	2,865	2,675	35	2,710
New Mexico	94	3,091	122	236	185	2,792	2,600	43	2,643
New York	93	2,704	56	98	171	2,491	2,242	60	2,302
North Carolina	95	3,160	97	142	107	3,008	2,791	52	2,843
North Dakota	96	2,672	55	58	91	2,578	2,483	2	2,485
Ohio	95	3,030	90	138	174	2,808	2,642	31	2,673
Oklahoma[1]	80	3,007	107	194	164	2,756	2,208	14	2,222
Pennsylvania	94	2,849	51	77	148	2,675	2,506	22	2,528
Rhode Island	93	3,152	91	178	208	2,857	2,633	42	2,675
South Carolina	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Tennessee	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Texas	96	2,909	140	196	196	2,657	2,525	17	2,542
Utah	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Virginia	94	3,120	85	195	174	2,836	2,633	28	2,661
West Virginia	94	3,008	77	152	172	2,761	2,532	68	2,600
Wisconsin	94	3,101	52	92	145	2,916	2,705	45	2,750
Wyoming	96	2,973	83	126	106	2,824	2,662	39	2,701
TERRITORIES									
Guam	93	1,810	62	58	75	1,739	1,573	44	1,617
Virgin Islands	93	1,490	1	16	48	1,427	1,299	27	1,326

(--) Because student sampling for the national assessment was implemented within several days of the assessment within each school there was no supplemental sample and the number of students withdrawn was negligible. (xxx) Did not participate in the 1990 Trial State Assessment.

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TABLE B.3 | Summary of School and Student Participation

PUBLIC SCHOOLS	Grade 4 - 1992					
	Weighted Percentage School Participation Before Substitution	Weighted Percentage School Participation After Substitution	Notation Number 1	Weighted Percentage Student Participation After Make-ups	Notation Number 3	Weighted Overall Rate
NATION	86	86		94		81
Northeast	82	82		94		78
Southeast	94	94		93		88
Central	92	92		94		87
West	79	79		94		75
STATES						
Alabama	75	97		95		93
Arizona	100	100		95		95
Arkansas	90	99		96		95
California	91	97		94		91
Colorado	100	100		95		95
Connecticut	99	99		96		95
Delaware	92	92		95		87
Dist. Columbia	99	99		93		92
Florida	100	100		95		95
Georgia	100	100		95		95
Hawaii	100	100		95		95
Idaho	84	97		97		94
Indiana	76	91		96		87
Iowa	100	100		96		96
Kentucky	93	96		96		92
Louisiana	100	100		95		95
Maine	57	71	***	95		68
Maryland	99	99		96		95
Massachusetts	87	97		95		92
Michigan	83	90		94		84
Minnesota	82	94		95		89
Mississippi	98	100		97		97
Missouri	89	97		96		93
Nebraska	80	87	***	96		83
New Hampshire	69	80	***	96		77
New Jersey	76	82	***	96		79
New Mexico	75	90		95		86
New York	78	83	***	96		80
North Carolina	95	99		95		94
North Dakota	73	90		96		87
Ohio	79	91		95		87
Oklahoma	86	98		84	***	83
Pennsylvania	84	95		96		91
Rhode Island	83	96		95		91
South Carolina	98	99		97		96
Tennessee	92	93		96		89
Texas	93	98		96		94
Utah	99	99		96		95
Virginia	99	99		95		94
West Virginia	100	100		96		96
Wisconsin	100	100		96		96
Wyoming	97	97		96		93
TERRITORY						
Guam	94	94		95		89

See explanations of the notations and guidelines about sample representativeness and for the derivation of weighted participation. Weighted percentages for the nation and region are based on schools sampled for all subject areas assessed in 1990 (reading, science, and mathematics) or 1992 (mathematics, reading, and writing). However, based on the national sampling design, the rates shown also are the best estimates for the mathematics assessment. **Notation Number 1** = Both the state's weighted participation rate for the initial sample of schools was below 85% AND the weighted school participation rate after substitution was below 90%; OR the weighted school participation rate of the initial sample of schools was below 70% (regardless of the participation rate after substitution.) **Notation number 3** = The weighted student response rate within participating schools was below 85 percent.

TABLE B.3 | Summary of School and Student Participation (continued)

PUBLIC SCHOOLS	Grade 8 - 1992						Grade 8 - 1990					
	Weighted Percentage School Participation Before Substitution	Weighted Percentage School Participation After Substitution	Notation Number 1	Weighted Percentage Student Participation After Make-ups	Notation Number 3	Weighted Overall Rate	Weighted Percentage School Participation Before Substitution	Weighted Percentage School Participation After Substitution	Notation Number 1	Weighted Percentage Student Participation After Make-ups	Notation Number 3	Weighted Overall Rate
NATION	88	89		89		79	88	92		90		83
Northeast	92	92		89		82	72	90		91		82
Southeast	94	94		90		85	94	94		91		86
Central	86	87		89		78	94	94		91		86
West	82	84		88		74	88	90		88		79
STATES												
Alabama	66	92	***	95		88	86	97		95		93
Arizona	99	99		93		92	97	97		93		90
Arkansas	89	97		94		91	100	100		95		95
California	93	98		92		90	94	94		93		87
Colorado	100	100		93		93	100	100		94		94
Connecticut	99	99		94		93	100	100		95		95
Delaware	100	100		92		92	100	100		93		93
Dist. Columbia	100	100		85		85	100	100		88		88
Florida	100	100		91		91	98	98		92		90
Georgia	99	99		93		92	100	100		94		94
Hawaii	100	100		90		90	100	100		93		93
Idaho	85	91		95		86	97	97		96		93
Indiana	79	94		94		88	89	94		95		89
Iowa	99	99		95		94	91	91		96		88
Kentucky	96	98		96		94	100	100		95		95
Louisiana	100	100		92		92	100	100		94		94
Maine	62	84	***	93		78	xxx	xxx		xxx		xxx
Maryland	89	91		92		84	100	100		94		94
Massachusetts	83	95		94		89	xxx	xxx		xxx		xxx
Michigan	78	94		94		88	90	97		95		92
Minnesota	81	92		94		87	90	93		95		89
Mississippi	99	100		95		95	xxx	xxx		xxx		xxx
Missouri	92	99		95		94	xxx	xxx		xxx		xxx
Nebraska	75	85	***	96		81	87	94		95		90
New Hampshire	80	92		94		86	91	97		95		92
New Jersey	69	78	***	94		73	97	98		94		93
New Mexico	77	94		93		87	100	100		94		94
New York	81	83	***	92		77	86	86		93		79
North Carolina	94	98		94		92	100	100		95		95
North Dakota	78	97		96		93	96	100		96		96
Ohio	77	90		93		83	96	98		95		93
Oklahoma	82	98		80	***	79	78	99		80	***	79
Pennsylvania	81	94		94		89	90	93		94		88
Rhode Island	85	100		93		92	94	97		93		91
South Carolina	94	97		94		91	xxx	xxx		xxx		xxx
Tennessee	87	91		94		86	xxx	xxx		xxx		xxx
Texas	95	99		94		93	88	97		96		93
Utah	100	100		94		94	xxx	xxx		xxx		xxx
Virginia	97	97		94		92	99	99		94		93
West Virginia	100	100		94		94	100	100		94		94
Wisconsin	100	100		94		94	99	99		94		93
Wyoming	99	99		95		94	100	100		96		96
TERRITORIES												
Guam	100	100		90		90	100	100		93		93
Virgin Islands	100	100		92		92	100	100		93		93

(xxx) Did not participate in the 1990 Trial State Assessment.

TABLE B.4 | Weighted Percentages of Students Excluded (IEP and LEP) from Original Sample

PUBLIC SCHOOLS	Grade 4 - 1992					
	Total Percentage Students Identified IEP and LEP	Total Percentage Students Excluded	Percentage Students Identified IEP	Percentage Students Excluded IEP	Percentage Students Identified LEP	Percentage Students Excluded LEP
NATION	12	8	9	6	4	3
Northeast	12	8	9	5	3	3
Southeast	11	7	9	6	1	1
Central	7	5	6	4	1	1
West	18	12	10	6	9	7
STATES						
Alabama	10	5	10	4	0	0
Arizona	15	5	7	3	9	2
Arkansas	12	5	11	5	1	0
California	28	12	8	3	22	10
Colorado	10	5	8	4	2	1
Connecticut	14	7	10	4	4	3
Delaware	12	5	11	5	1	1
Dist. Columbia	12	9	8	7	4	2
Florida	17	8	13	7	4	2
Georgia	10	5	9	5	1	1
Hawaii	14	6	10	5	4	2
Idaho	9	3	8	3	2	1
Indiana	7	3	6	3	1	0
Iowa	9	3	8	3	1	0
Kentucky	8	3	8	3	0	0
Louisiana	8	4	7	4	1	0
Maine	14	6	14	6	0	0
Maryland	11	4	10	3	1	1
Massachusetts	18	7	15	6	3	2
Michigan	7	5	7	5	1	1
Minnesota	9	3	7	3	2	0
Mississippi	7	5	7	5	0	0
Missouri	12	4	12	4	0	0
Nebraska	13	4	12	4	1	0
New Hampshire	12	4	12	4	0	0
New Jersey	11	6	8	3	4	2
New Mexico	15	7	12	6	3	1
New York	12	5	7	3	5	2
North Carolina	12	4	12	3	1	0
North Dakota	9	2	8	2	1	0
Ohio	10	6	10	6	1	0
Oklahoma	14	7	12	7	2	0
Pennsylvania	9	4	8	3	1	1
Rhode Island	16	6	10	4	6	3
South Carolina	10	5	10	5	0	0
Tennessee	11	4	11	4	0	0
Texas	17	8	9	5	9	4
Utah	10	4	9	4	1	1
Virginia	12	5	10	5	1	1
West Virginia	9	4	9	4	0	0
Wisconsin	11	5	9	5	2	1
Wyoming	10	4	9	3	1	0
TERRITORY						
Guam	12	6	6	4	7	3

IEP = Individual Education Plan and LEP = Limited English Proficiency. To be excluded, a student was supposed to be IEP or LEP and judged incapable of participating in the assessment. A student reported as both IEP and LEP is counted once in the overall rate (first column), once in the overall excluded rate (second column), and separately in the remaining columns. Note: Weighted percentages for the nation and region are based on students sampled for all subject areas assessed in 1990 (reading, science, and mathematics) or 1992 (mathematics, reading, and writing). However, based on the national sampling design, the rates shown also are the best estimates for the mathematics assessment.

TABLE B.4 | Weighted Percentages of Students Excluded (IEP and LEP) from Original Sample (continued)

PUBLIC SCHOOLS	Grade 8 - 1992						Grade 8 - 1990					
	Total Percentage Students Identified IEP and LEP	Total Percentage Students Excluded	Percentage Students Identified IEP	Percentage Students Excluded IEP	Percentage Students Identified LEP	Percentage Students Excluded LEP	Total Percentage Students Identified IEP and LEP	Total Percentage Students Excluded	Percentage Students Identified IEP	Percentage Students Excluded IEP	Percentage Students Identified LEP	Percentage Students Excluded LEP
NATION	12	7	9	5	3	2	8	6	6	5	2	1
Northeast	12	8	10	6	3	2	6	4	6	4	1	0
Southeast	11	6	10	5	1	1	6	4	6	4	0	0
Central	9	6	8	5	1	1	9	8	8	6	2	2
West	15	9	8	5	8	4	10	6	6	4	4	2
STATES												
Alabama	10	5	10	5	0	0	10	6	10	6	0	0
Arizona	12	6	6	4	6	2	13	5	7	4	6	2
Arkansas	11	6	11	6	0	0	12	8	11	8	0	0
California	20	8	8	4	13	5	16	8	7	4	9	5
Colorado	9	4	8	4	1	1	10	5	9	4	1	1
Connecticut	14	7	12	5	3	1	12	7	10	6	2	1
Delaware	10	4	9	4	1	0	10	5	9	4	1	1
Dist. Columbia	12	10	9	7	3	2	7	6	5	5	1	1
Florida	13	6	10	5	4	2	12	7	9	5	3	2
Georgia	8	5	7	4	1	0	7	4	7	4	0	0
Hawaii	13	5	9	3	4	2	10	5	7	4	3	1
Idaho	7	3	6	3	1	0	7	3	6	2	1	0
Indiana	9	5	8	4	1	0	8	5	7	5	0	0
Iowa	11	4	10	4	1	0	10	4	10	4	0	0
Kentucky	9	5	9	5	0	0	8	5	8	5	0	0
Louisiana	7	4	7	4	0	0	7	5	6	4	0	0
Maine	11	4	11	4	0	0	xxx	xxx	xxx	xxx	xxx	xxx
Maryland	11	5	10	4	1	1	11	5	10	4	1	1
Massachusetts	18	8	15	6	4	2	xxx	xxx	xxx	xxx	xxx	xxx
Michigan	9	6	9	6	1	0	9	5	8	4	1	0
Minnesota	8	3	7	3	1	0	9	3	8	3	1	0
Mississippi	10	7	10	7	0	0	xxx	xxx	xxx	xxx	xxx	xxx
Missouri	11	4	10	4	0	0	xxx	xxx	xxx	xxx	xxx	xxx
Nebraska	11	4	10	4	1	0	9	3	8	3	0	0
New Hampshire	13	5	12	5	0	0	12	5	12	5	0	0
New Jersey	14	7	12	6	3	1	13	8	10	6	2	2
New Mexico	12	5	11	4	3	1	10	7	9	6	2	1
New York	13	8	10	6	3	3	12	7	9	5	4	2
North Carolina	12	3	12	3	1	0	9	3	9	3	0	0
North Dakota	8	2	7	2	1	0	8	3	8	3	1	0
Ohio	10	6	10	6	0	0	8	6	8	6	0	0
Oklahoma	11	6	10	6	1	0	9	6	8	5	1	0
Pennsylvania	10	4	9	4	1	0	11	6	10	5	1	0
Rhode Island	14	5	10	4	4	2	15	7	12	5	4	2
South Carolina	10	6	10	6	0	0	xxx	xxx	xxx	xxx	xxx	xxx
Tennessee	10	5	10	5	0	0	xxx	xxx	xxx	xxx	xxx	xxx
Texas	14	7	9	5	6	2	14	7	8	5	5	2
Utah	9	4	9	4	1	0	xxx	xxx	xxx	xxx	xxx	xxx
Virginia	12	5	10	5	2	1	10	6	8	5	2	1
West Virginia	10	6	10	6	0	0	10	6	10	6	0	0
Wisconsin	10	4	10	4	1	0	8	5	8	4	1	0
Wyoming	9	4	9	4	0	0	9	4	8	4	1	0
TERRITORIES												
Guam	7	4	5	3	2	1	7	4	5	4	2	1
Virgin Islands	7	5	5	3	2	2	4	3	4	3	0	0

(xxx) Did not participate in the 1990 Trial State Assessment.

TABLE B.5 | Weighted Percentages of Absent, IEP, and LEP Students Based on Those Invited to Participate in the Assessment

PUBLIC SCHOOLS	Grade 4 - 1992					
	Weighted Percentage Student Participation After Make-Ups	Weighted Percentage Absent	Weighted Percentage Assessed IEP	Weighted Percentage Absent IEP	Weighted Percentage Assessed LEP	Weighted Percentage Absent LEP
NATION	94	6	89	11	93	7
Northeast	94	6	93	7	81	19
Southeast	93	7	83	17	68	32
Central	94	6	92	8	96	4
West	93	7	90	10	94	6
STATES						
Alabama	95	5	95	5	100	0
Arizona	95	5	96	4	93	7
Arkansas	96	4	95	5	100	0
California	94	6	85	15	93	7
Colorado	95	5	92	8	95	5
Connecticut	96	4	94	6	95	5
Delaware	95	5	95	5	65	35
Dist. Columbia	93	7	85	15	82	18
Florida	95	5	95	5	95	5
Georgia	95	5	92	8	90	10
Hawaii	95	5	91	9	95	5
Idaho	97	3	93	7	95	5
Indiana	96	4	94	6	86	14
Iowa	96	4	96	4	100	0
Kentucky	96	4	90	10	100	0
Louisiana	95	5	91	9	100	0
Maine	95	5	95	5	100	0
Maryland	96	4	95	5	100	0
Massachusetts	95	5	93	7	92	8
Michigan	94	6	93	7	100	0
Minnesota	95	5	92	8	95	5
Mississippi	97	3	95	5	100	0
Missouri	96	4	97	3	100	0
Nebraska	96	4	94	6	92	8
New Hampshire	96	4	94	6	91	9
New Jersey	96	4	95	5	100	0
New Mexico	95	5	93	7	97	3
New York	96	4	91	9	97	3
North Carolina	95	5	91	9	100	0
North Dakota	96	4	96	4	100	0
Ohio	95	5	95	5	100	0
Oklahoma	85	15	72	28	69	31
Pennsylvania	96	4	99	1	100	0
Rhode Island	95	5	94	6	94	6
South Carolina	97	3	91	9	100	0
Tennessee	96	4	96	4	100	0
Texas	96	4	98	2	98	2
Utah	96	4	95	5	100	0
Virginia	95	5	90	10	95	5
West Virginia	96	4	94	6	0	0
Wisconsin	96	4	91	9	93	7
Wyoming	96	4	94	6	89	11
TERRITORY						
Guam	95	5	85	15	88	12

IEP = Individual Education Plan and LEP = Limited English Proficiency. Note: Weighted percentages for the nation and region are based on students sampled for all subject areas assessed in 1990 (reading, science, and mathematics) or 1992 (mathematics, reading, and writing). However, based on the national sampling design, the rates shown also are the best estimates for the mathematics assessment.

TABLE B.5 Weighted Percentages of Absent, IEP, and LEP Students Based on Those Invited to Participate in the Assessment (continued)

PUBLIC SCHOOLS	Grade 8 - 1992						Grade 8 - 1990					
	Weighted Percentage Student Participation After Make-Ups	Weighted Percentage Absent	Weighted Percentage Assessed IEP	Weighted Percentage Absent IEP	Weighted Percentage Assessed LEP	Weighted Percentage Absent LEP	Weighted Percentage Student Participation After Make-Ups	Weighted Percentage Absent	Weighted Percentage Assessed IEP	Weighted Percentage Absent IEP	Weighted Percentage Assessed LEP	Weighted Percentage Absent LEP
NATION	89	11	80	20	84	16	90	10	91	9	87	13
Northeast	89	11	78	22	78	22	91	9	86	14	81	19
Southeast	89	11	78	22	78	22	91	9	93	7	0	0
Central	91	9	84	16	84	16	91	9	98	2	100	0
West	88	12	83	17	86	14	88	12	88	12	87	13
STATES												
Alabama	95	5	90	10	74	26	95	5	92	8	100	0
Arizona	93	7	90	10	97	3	93	7	90	10	89	11
Arkansas	94	6	91	9	100	0	95	5	91	9	100	0
California	92	8	87	13	90	10	93	7	97	3	94	6
Colorado	93	7	92	8	100	0	94	6	92	8	100	0
Connecticut	94	6	90	10	100	0	95	5	93	7	100	0
Delaware	92	8	86	14	100	0	93	7	94	6	80	20
Dist. Columbia	85	15	63	37	89	11	88	12	92	8	0	0
Florida	91	9	82	18	94	6	92	8	88	12	79	21
Georgia	93	7	86	14	92	8	94	6	97	3	93	7
Hawaii	90	10	81	19	93	7	93	7	85	15	100	0
Idaho	95	5	95	5	100	0	96	4	97	3	100	0
Indiana	94	6	92	8	100	0	95	5	93	7	100	0
Iowa	95	5	91	9	100	0	96	4	97	3	100	0
Kentucky	96	4	97	3	100	0	95	5	94	6	100	0
Louisiana	92	8	87	13	79	21	94	6	96	4	100	0
Maine	93	7	87	13	100	0	xxx	xxx	xxx	xxx	xxx	xxx
Maryland	92	8	86	14	100	0	94	6	88	12	100	0
Massachusetts	93	7	86	14	92	8	xxx	xxx	xxx	xxx	xxx	xxx
Michigan	94	6	96	4	100	0	95	5	94	6	100	0
Minnesota	94	6	88	12	72	28	95	5	96	4	100	0
Mississippi	95	5	91	9	100	0	xxx	xxx	xxx	xxx	xxx	xxx
Missouri	95	5	95	5	100	0	xxx	xxx	xxx	xxx	xxx	xxx
Nebraska	95	5	92	8	100	0	95	5	95	5	100	0
New Hampshire	94	6	89	11	100	0	95	5	95	5	100	0
New Jersey	94	6	92	8	97	3	94	6	88	12	94	6
New Mexico	93	7	88	12	89	11	94	6	95	5	95	5
New York	91	9	87	13	100	0	93	7	94	6	100	0
North Carolina	94	6	93	7	78	22	95	5	93	7	100	0
North Dakota	96	4	95	5	100	0	96	4	95	5	100	0
Ohio	93	7	86	14	91	9	95	5	97	3	100	0
Oklahoma	80	20	68	32	73	27	80	20	76	24	100	0
Pennsylvania	94	6	87	13	83	17	94	6	95	5	100	0
Rhode Island	93	7	90	10	91	9	93	7	92	8	91	9
South Carolina	93	7	88	12	100	0	xxx	xxx	xxx	xxx	xxx	xxx
Tennessee	94	6	91	9	100	0	xxx	xxx	xxx	xxx	xxx	xxx
Texas	94	6	93	7	85	15	96	4	97	3	94	6
Utah	94	6	90	10	100	0	xxx	xxx	xxx	xxx	xxx	xxx
Virginia	94	6	90	10	96	4	94	6	91	9	90	10
West Virginia	94	6	92	8	100	0	94	6	94	6	100	0
Wisconsin	94	6	87	13	86	14	94	6	93	7	93	7
Wyoming	95	5	94	6	57	43	96	4	93	7	100	0
TERRITORIES												
Guam	90	10	86	14	83	17	93	7	75	25	100	0
Virgin Islands	92	8	53	47	89	11	93	7	73	27	100	0

(xxx) Did not participate in the 1990 Trial State Assessment.

TABLE B.6 | Questionnaire Response Rates

PUBLIC SCHOOLS	Grade 4 - 1992				
	Weighted Percentage of Students Matched to Mathematics Teacher Questionnaires	Percentage of Mathematics Teacher Questionnaires Returned	Weighted Percentage of Students Matched to School Characteristics/ Policies Questionnaires	Percentage of School Characteristics/ Policies Questionnaires Returned	Percentage of Excluded Student Questionnaires Returned
NATION	74.9	97.7	99.0	98.5	91.0
Northeast	75.9	95.8	100.0	100.0	94.6
Southeast	82.7	99.0	96.3	96.1	94.4
Central	72.8	97.6	99.8	98.4	93.3
West	67.8	97.2	100.0	100.0	87.1
STATES					
Alabama	91.0	100.0	100.0	100.0	96.1
Arizona	92.5	99.6	99.0	99.1	96.0
Arkansas	94.3	100.0	100.0	100.0	100.0
California	90.6	99.3	98.9	99.1	89.8
Colorado	86.3	99.3	100.0	100.0	95.2
Connecticut	89.0	99.8	98.6	98.2	88.3
Delaware	94.3	100.0	100.0	100.0	99.2
Dist. Columbia	80.0	99.0	93.7	94.4	94.1
Florida	90.1	98.9	99.2	99.1	97.1
Georgia	88.2	99.3	100.0	100.0	97.4
Hawaii	92.5	98.8	98.8	99.1	98.2
Idaho	91.8	99.7	100.0	100.0	98.0
Indiana	89.3	100.0	100.0	100.0	98.9
Iowa	90.8	99.5	100.0	100.0	98.0
Kentucky	89.9	99.5	99.4	99.1	100.0
Louisiana	91.2	99.6	98.9	99.1	96.7
Maine	90.6	99.1	99.3	98.9	94.3
Maryland	90.2	99.5	100.0	100.0	92.9
Massachusetts	87.4	100.0	100.0	100.0	97.7
Michigan	89.9	100.0	100.0	100.0	95.6
Minnesota	80.4	97.6	95.5	96.2	91.2
Mississippi	88.6	99.8	100.0	100.0	97.3
Missouri	90.6	99.7	100.0	100.0	91.5
Nebraska	86.1	100.0	99.0	99.2	99.2
New Hampshire	94.9	99.7	97.8	99.0	100.0
New Jersey	92.5	100.0	100.0	100.0	99.2
New Mexico	87.3	99.0	100.0	100.0	94.8
New York	91.7	99.0	99.5	98.9	100.0
North Carolina	94.4	100.0	99.1	99.1	99.2
North Dakota	93.1	100.0	100.0	100.0	97.8
Ohio	89.6	99.5	99.8	99.1	94.0
Oklahoma	94.5	99.1	97.9	98.4	92.6
Pennsylvania	93.8	100.0	100.0	100.0	100.0
Rhode Island	92.1	99.4	99.1	98.9	93.8
South Carolina	97.3	99.6	100.0	100.0	98.6
Tennessee	93.4	100.0	99.3	99.1	97.4
Texas	84.5	99.9	99.3	99.0	99.1
Utah	95.2	99.5	100.0	100.0	97.7
Virginia	88.4	99.6	97.7	97.3	95.7
West Virginia	88.5	100.0	100.0	100.0	100.0
Wisconsin	90.2	99.7	99.3	99.2	97.1
Wyoming	91.4	100.0	99.9	99.3	100.0
TERRITORY					
Guam	97.5	98.3	93.7	95.0	87.2

The Mathematics Teacher Questionnaire requested background information about the teacher (Part I) and information about instruction in particular classes (Part II). The percentage of students matched to questionnaires is provided for Part II. If they differed, the match rates for Part I were higher. Note: For the nation and regions, the percentage of excluded student questionnaires returned is based on students sampled for all subjects assessed in 1990 (reading, science, and mathematics) or 1992 (mathematics, reading, and writing). However, based on the sampling design, these rates also are the best estimates of the comparable rates for the mathematics assessment in each year.

TABLE B.6 | Questionnaire Response Rates (continued)

PUBLIC SCHOOLS	Grade 8 - 1992				
	Weighted Percentage of Students Matched to Mathematics Teacher Questionnaires	Percentage of Mathematics Teacher Questionnaires Returned	Weighted Percentage of Students Matched to School Characteristics/ Policies Questionnaires	Percentage of School Characteristics/ Policies Questionnaires Returned	Percentage of Excluded Student Questionnaires Returned
NATION	79.7	96.2	94.5	92.7	88.8
Northeast	81.7	97.9	89.0	90.0	88.6
Southeast	80.2	97.9	98.6	98.2	85.1
Central	76.1	95.1	95.0	92.6	94.5
West	80.8	94.8	94.3	89.7	88.0
STATES					
Alabama	94.1	100.0	100.0	100.0	99.4
Arizona	91.1	98.1	97.7	98.0	97.2
Arkansas	95.0	99.6	99.0	99.0	100.0
California	92.5	98.2	100.0	100.0	97.9
Colorado	90.5	99.0	98.2	98.2	98.5
Connecticut	97.3	99.7	99.4	99.0	96.9
Delaware	97.4	100.0	100.0	100.0	97.9
Dist. Columbia	83.4	96.6	93.6	97.1	92.0
Florida	94.8	99.0	99.2	99.0	97.0
Georgia	94.1	99.7	98.2	98.0	98.5
Hawaii	89.8	96.4	97.9	98.0	97.9
Idaho	90.8	98.6	96.2	97.1	97.8
Indiana	92.4	100.0	100.0	100.0	96.4
Iowa	92.4	99.6	100.0	100.0	100.0
Kentucky	91.0	99.3	96.2	96.2	99.3
Louisiana	93.8	99.7	100.0	100.0	100.0
Maine	91.4	100.0	100.0	100.0	95.9
Maryland	90.9	99.3	98.2	97.8	93.0
Massachusetts	89.7	100.0	96.5	97.9	98.2
Michigan	93.2	99.7	100.0	100.0	99.5
Minnesota	83.8	98.0	95.7	96.7	95.7
Mississippi	95.1	99.6	99.0	99.0	98.1
Missouri	95.9	99.7	100.0	100.0	98.4
Nebraska	93.8	100.0	94.4	95.2	100.0
New Hampshire	92.9	98.8	100.0	100.0	98.1
New Jersey	96.2	100.0	100.0	100.0	99.4
New Mexico	92.9	99.3	100.0	100.0	97.5
New York	94.6	100.0	100.0	100.0	100.0
North Carolina	95.3	100.0	100.0	100.0	100.0
North Dakota	96.9	100.0	100.0	100.0	100.0
Ohio	89.6	99.6	97.4	96.9	98.3
Oklahoma	91.7	99.3	99.3	99.0	100.0
Pennsylvania	97.2	100.0	100.0	100.0	100.0
Rhode Island	82.8	98.7	100.0	100.0	100.0
South Carolina	94.6	99.5	100.0	100.0	97.7
Tennessee	94.7	99.6	100.0	100.0	99.3
Texas	94.5	100.0	100.0	100.0	100.0
Utah	90.2	98.7	99.1	98.8	98.5
Virginia	96.2	99.5	99.1	99.0	100.0
West Virginia	93.3	100.0	100.0	100.0	99.4
Wisconsin	89.8	98.0	100.0	100.0	97.7
Wyoming	88.8	100.0	94.5	98.1	100.0
TERRITORIES					
Guam	90.8	96.4	79.6	83.3	77.8
Virgin Islands	84.3	91.2	100.0	100.0	89.5

TABLE B.6 | Questionnaire Response Rates (continued)

PUBLIC SCHOOLS	Grade 8 - 1990				
	Weighted Percentage of Students Matched to Mathematics Teacher Questionnaires	Percentage of Mathematics Teacher Questionnaires Returned	Weighted Percentage of Students Matched to School Characteristics/ Policies Questionnaires	Percentage of School Characteristics/ Policies Questionnaires Returned	Percentage of Excluded Student Questionnaires Returned
NATION	76	72	86	84	90
Northeast	65	60	94	88	100
Southeast	78	73	91	87	85
Central	79	80	70	75	79
West	77	72	88	88	97
STATES					
Alabama	94	91	100	100	100
Arizona	85	84	99	99	98
Arkansas	92	90	98	98	100
California	86	86	98	97	95
Colorado	85	87	99	99	100
Connecticut	89	87	99	99	96
Delaware	85	83	96	97	98
Dist. Columbia	94	87	98	97	99
Florida	88	86	98	97	97
Georgia	87	89	98	98	100
Hawaii	91	88	99	98	99
Idaho	87	87	98	99	97
Indiana	87	86	98	98	93
Iowa	89	90	99	99	99
Kentucky	93	89	100	100	100
Louisiana	90	86	99	99	100
Maine	xxx	xxx	xxx	xxx	xxx
Maryland	89	90	99	99	99
Massachusetts	xxx	xxx	xxx	xxx	xxx
Michigan	91	91	100	100	99
Minnesota	88	86	99	99	97
Mississippi	xxx	xxx	xxx	xxx	xxx
Missouri	xxx	xxx	xxx	xxx	xxx
Nebraska	89	88	99	99	99
New Hampshire	88	83	100	100	99
New Jersey	91	88	99	99	97
New Mexico	90	88	97	97	93
New York	85	86	98	99	98
North Carolina	91	90	98	98	97
North Dakota	94	87	95	97	99
Ohio	83	83	100	100	98
Oklahoma	91	91	99	99	99
Pennsylvania	87	85	98	98	97
Rhode Island	87	84	100	100	100
South Carolina	xxx	xxx	xxx	xxx	xxx
Tennessee	xxx	xxx	xxx	xxx	xxx
Texas	84	89	99	99	99
Utah	xxx	xxx	xxx	xxx	xxx
Virginia	93	93	98	97	99
West Virginia	91	88	99	99	100
Wisconsin	87	81	99	99	98
Wyoming	84	81	100	99	99
TERRITORIES					
Guam	98	85	100	100	100
Virgin Islands	88	85	100	100	100

(xxx) Did not participate in the 1990 Trial State Assessment.

APPENDIX C

State Contextual Background Factors: Summary of Students' Characteristics by Race/Ethnicity and Type of Community and Co-Statistics From Sources External to NAEP

Introduction

Appendix C presents a summary of student characteristics by race/ethnicity and type of community on a state-by-state level. To supplement the NAEP data, co-statistics have been compiled from sources external to NAEP. The statistics provide a comprehensive overview of demographic characteristics for each state, with an emphasis on the school systems. With data ranging from pupil-teacher ratios to the percentage of schools offering free lunches, Appendix C examines many of the external factors which may affect student performance.

TABLE C.1 | Characteristics of NAEP Students by Race/Ethnicity and by Type of Community

PUBLIC SCHOOLS	Grade 4 - 1992								
	Percentage of Students by Race/Ethnicity					Percentage of Students by Type of Community			
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	69 (0.4)	17 (0.4)	10 (0.2)	3 (0.3)	2 (0.2)	9 (1.8)	10 (1.5)	13 (2.4)	67 (3.2)
Northeast	71 (2.9)	17 (2.7)	8 (1.2)	2 (0.7)	1 (0.3)	20 (5.5)	16 (5.5)	4 (1.2)	60 (8.0)
Southeast	61 (2.5)	30 (2.6)	6 (1.0)	1 (0.3)	1 (0.3)	5 (3.0)	13 (3.5)	19 (6.9)	63 (7.6)
Central	80 (1.8)	12 (1.7)	6 (0.8)	1 (0.2)	1 (0.3)	5 (2.1)	9 (1.9)	16 (3.4)	70 (4.1)
West	64 (1.7)	10 (1.7)	17 (1.6)	5 (1.0)	2 (0.3)	8 (3.7)	5 (1.3)	13 (4.7)	74 (5.7)
STATES									
Alabama	61 (2.5)	32 (2.3)	4 (0.6)	1 (0.2)	2 (1.0)	11 (3.1)	13 (3.2)	14 (4.0)	62 (5.6)
Arizona	56 (2.1)	4 (0.7)	29 (1.5)	1 (0.2)	10 (1.7)	13 (3.9)	10 (3.0)	8 (3.3)	69 (5.5)
Arkansas	69 (1.5)	21 (1.4)	6 (0.6)	1 (0.2)	3 (0.4)	1 (1.2)	6 (1.5)	25 (4.1)	68 (4.7)
California	45 (2.0)	6 (0.7)	35 (1.7)	11 (1.1)	3 (0.5)	12 (2.5)	23 (3.7)	1 (0.3)	65 (4.6)
Colorado	68 (1.5)	5 (1.0)	22 (1.3)	3 (0.3)	3 (0.3)	18 (3.2)	13 (2.9)	13 (2.7)	57 (5.0)
Connecticut	73 (1.4)	10 (1.1)	13 (1.1)	2 (0.4)	1 (0.2)	19 (4.2)	15 (3.0)	0 (0.0)	66 (5.0)
Delaware	66 (1.1)	23 (0.9)	8 (0.4)	1 (0.2)	2 (0.4)	10 (0.2)	8 (0.2)	24 (0.1)	58 (0.3)
Dist. Columbia	5 (0.4)	82 (0.6)	10 (0.4)	1 (0.2)	2 (0.3)	20 (0.3)	60 (0.4)	0 (0.0)	20 (0.3)
Florida	58 (2.2)	21 (2.0)	17 (1.3)	2 (0.4)	2 (0.3)	18 (4.4)	21 (3.9)	4 (1.3)	57 (4.5)
Georgia	56 (2.2)	35 (2.1)	6 (0.6)	1 (0.2)	1 (0.3)	10 (3.4)	15 (4.6)	12 (3.6)	63 (6.2)
Hawaii	21 (1.6)	4 (0.6)	11 (0.7)	61 (2.1)	2 (0.3)	12 (3.6)	9 (1.8)	5 (1.9)	75 (4.3)
Idaho	84 (1.2)	1 (0.2)	11 (1.0)	1 (0.2)	3 (0.3)	9 (2.6)	1 (0.9)	33 (4.9)	56 (5.5)
Indiana	82 (1.5)	10 (1.3)	5 (0.6)	1 (0.2)	1 (0.3)	8 (2.7)	10 (2.8)	15 (3.3)	68 (4.9)
Iowa	90 (0.9)	2 (0.5)	5 (0.5)	1 (0.3)	2 (0.3)	7 (2.9)	6 (2.5)	41 (3.5)	46 (4.2)
Kentucky	85 (1.6)	9 (1.3)	4 (0.6)	1 (0.2)	2 (0.3)	6 (2.7)	11 (2.7)	24 (4.2)	60 (4.8)
Louisiana	50 (2.0)	43 (2.0)	5 (0.6)	2 (0.7)	1 (0.3)	5 (2.3)	18 (2.5)	11 (2.7)	65 (3.9)
Maine	91 (0.7)	1 (0.1)	5 (0.6)	1 (0.2)	3 (0.5)	2 (1.6)	2 (1.3)	19 (4.7)	77 (4.9)
Maryland	59 (1.7)	30 (1.4)	6 (0.6)	4 (0.5)	2 (0.2)	20 (3.6)	16 (4.0)	5 (2.1)	59 (4.9)
Massachusetts	79 (1.6)	7 (0.8)	8 (0.8)	4 (0.7)	2 (0.2)	16 (3.4)	14 (2.7)	1 (0.9)	68 (4.2)
Michigan	73 (1.8)	13 (1.7)	9 (0.9)	2 (0.3)	3 (0.4)	10 (3.0)	15 (3.7)	10 (3.6)	65 (5.1)
Minnesota	85 (1.3)	3 (0.5)	7 (0.8)	2 (0.4)	2 (0.3)	12 (3.9)	3 (2.2)	29 (3.8)	56 (5.4)
Mississippi	40 (2.0)	52 (2.1)	6 (0.9)	1 (0.2)	1 (0.2)	1 (1.1)	6 (1.9)	11 (2.3)	82 (3.2)
Missouri	77 (1.7)	14 (1.7)	6 (0.5)	1 (0.2)	2 (0.4)	9 (3.0)	11 (2.9)	26 (3.9)	53 (5.3)
Nebraska	84 (1.3)	6 (0.7)	7 (0.9)	1 (0.2)	2 (0.3)	8 (2.7)	6 (1.4)	26 (3.9)	59 (4.8)
New Hampshire	89 (1.2)	1 (0.2)	5 (0.6)	1 (0.2)	3 (0.3)	8 (3.5)	1 (1.3)	4 (1.8)	86 (4.0)
New Jersey	66 (2.2)	14 (1.2)	14 (1.5)	5 (0.8)	1 (0.3)	30 (4.3)	17 (3.3)	1 (1.0)	53 (5.0)
New Mexico	44 (2.4)	4 (0.5)	47 (2.0)	1 (0.3)	4 (1.3)	11 (5.7)	9 (2.9)	4 (2.0)	77 (6.1)
New York	59 (2.2)	13 (1.6)	22 (1.7)	4 (0.8)	2 (0.4)	15 (3.7)	24 (3.7)	2 (1.6)	58 (4.7)
North Carolina	62 (1.7)	29 (1.3)	6 (0.7)	1 (0.2)	3 (0.9)	5 (1.6)	4 (1.9)	19 (4.0)	71 (4.6)
North Dakota	91 (1.0)	0 (0.2)	4 (0.6)	1 (0.2)	4 (0.8)	11 (3.1)	2 (1.4)	43 (3.6)	44 (4.3)
Ohio	79 (1.5)	11 (1.2)	6 (0.5)	1 (0.3)	2 (0.4)	10 (2.6)	18 (2.6)	17 (3.9)	55 (4.8)
Oklahoma	73 (1.5)	9 (1.2)	7 (0.8)	1 (0.2)	10 (0.8)	9 (3.1)	10 (2.6)	21 (3.6)	60 (4.6)
Pennsylvania	77 (1.6)	12 (1.6)	7 (0.8)	2 (0.4)	1 (0.3)	15 (4.9)	17 (3.4)	14 (3.8)	54 (5.6)
Rhode Island	78 (2.1)	6 (1.0)	11 (1.1)	3 (0.4)	2 (0.3)	12 (4.0)	24 (4.9)	0 (0.0)	64 (5.7)
South Carolina	55 (1.7)	37 (1.8)	6 (0.8)	1 (0.2)	1 (0.3)	6 (2.2)	6 (1.5)	13 (3.1)	74 (4.0)
Tennessee	69 (2.1)	23 (1.9)	5 (0.8)	1 (0.4)	1 (0.2)	6 (2.7)	13 (3.6)	10 (2.8)	71 (4.6)
Texas	49 (1.8)	14 (1.8)	34 (2.3)	2 (0.4)	1 (0.2)	10 (3.2)	21 (4.8)	13 (3.3)	56 (6.3)
Utah	86 (1.0)	1 (0.2)	10 (0.8)	2 (0.3)	2 (0.3)	20 (3.6)	3 (1.7)	7 (2.6)	70 (4.4)
Virginia	67 (1.4)	23 (1.3)	5 (0.6)	3 (0.4)	1 (0.3)	13 (3.1)	14 (3.1)	13 (2.7)	59 (4.7)
West Virginia	90 (0.9)	3 (0.4)	5 (0.8)	1 (0.2)	2 (0.2)	2 (1.4)	8 (2.5)	16 (3.6)	75 (4.6)
Wisconsin	81 (1.4)	6 (1.0)	7 (0.7)	2 (0.5)	3 (1.1)	9 (2.6)	7 (2.4)	26 (5.0)	58 (5.3)
Wyoming	82 (1.4)	1 (0.2)	11 (0.9)	1 (0.2)	5 (1.2)	7 (2.1)	4 (1.8)	20 (3.4)	69 (4.5)
TERRITORY									
Guam	12 (0.7)	4 (0.4)	20 (0.8)	62 (1.0)	2 (0.4)	0 (0.0)	0 (0.0)	19 (0.1)	81 (0.1)

The standard errors of the estimated percentages appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample.

TABLE C.1 | Characteristics of NAEP Students by Race/Ethnicity and by Type of Community (continued)

PUBLIC SCHOOLS	Grade 8 - 1992								
	Percentage of Students by Race/Ethnicity					Percentage of Students by Type of Community			
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	69 (0.4)	16 (0.2)	10 (0.3)	2 (0.2)	1 (0.2)	8 (2.2)	9 (1.5)	10 (2.8)	72 (3.5)
Northeast	67 (2.6)	19 (1.5)	10 (1.7)	2 (0.5)	1 (0.3)	12 (6.5)	12 (3.7)	7 (4.8)	69 (8.2)
Southeast	68 (1.8)	27 (1.8)	4 (0.7)	1 (0.3)	1 (0.2)	5 (3.5)	9 (2.5)	16 (7.2)	69 (7.9)
Central	79 (2.0)	13 (1.9)	5 (0.8)	2 (0.5)	1 (0.4)	8 (2.4)	9 (3.0)	9 (6.0)	74 (6.9)
West	63 (1.5)	8 (1.3)	21 (1.7)	5 (0.8)	2 (0.7)	7 (4.0)	9 (3.2)	8 (4.0)	76 (5.3)
STATES									
Alabama	61 (2.3)	32 (2.1)	4 (0.6)	1 (0.2)	2 (0.4)	4 (2.4)	16 (3.5)	15 (3.2)	65 (4.7)
Arizona	60 (2.1)	4 (0.5)	28 (1.6)	2 (0.3)	6 (1.3)	15 (5.3)	14 (3.1)	7 (2.2)	64 (5.8)
Arkansas	72 (1.4)	22 (1.3)	4 (0.4)	1 (0.2)	1 (0.2)	2 (1.4)	5 (1.9)	16 (3.9)	76 (4.4)
California	44 (1.8)	7 (1.1)	36 (1.7)	11 (1.0)	1 (0.2)	8 (3.2)	19 (3.2)	3 (1.9)	71 (5.1)
Colorado	74 (1.2)	4 (0.6)	18 (1.1)	2 (0.3)	2 (0.3)	18 (3.5)	10 (2.3)	13 (2.9)	60 (4.9)
Connecticut	72 (1.6)	12 (1.1)	12 (0.9)	3 (0.4)	0 (0.1)	10 (3.5)	17 (3.3)	0 (0.0)	72 (4.4)
Delaware	65 (0.9)	25 (1.1)	6 (0.6)	2 (0.3)	2 (0.3)	0 (0.0)	0 (0.0)	11 (0.1)	89 (0.1)
Dist. Columbia	3 (0.2)	85 (0.8)	10 (0.7)	1 (0.2)	1 (0.3)	7 (0.3)	67 (0.4)	0 (0.0)	25 (0.4)
Florida	56 (2.1)	23 (2.0)	18 (2.0)	2 (0.3)	1 (0.2)	7 (2.9)	17 (3.5)	6 (2.1)	69 (4.9)
Georgia	59 (2.1)	35 (1.9)	4 (0.5)	2 (0.3)	0 (0.1)	6 (1.9)	10 (2.9)	9 (2.2)	74 (4.0)
Hawaii	17 (0.9)	3 (0.3)	11 (0.7)	66 (1.1)	1 (0.2)	5 (0.1)	16 (0.4)	1 (0.0)	78 (0.4)
Idaho	88 (0.7)	1 (0.2)	8 (0.6)	1 (0.2)	3 (0.4)	4 (2.2)	5 (2.4)	29 (4.3)	62 (5.0)
Indiana	85 (1.3)	8 (1.1)	4 (0.6)	1 (0.2)	1 (0.2)	5 (2.3)	11 (2.4)	13 (2.6)	71 (4.3)
Iowa	92 (0.7)	2 (0.4)	4 (0.4)	1 (0.2)	1 (0.2)	4 (2.3)	3 (1.0)	44 (5.4)	49 (5.7)
Kentucky	87 (1.0)	9 (1.0)	3 (0.4)	1 (0.2)	1 (0.2)	3 (1.1)	12 (3.3)	15 (3.7)	70 (5.1)
Louisiana	54 (1.7)	39 (1.5)	5 (0.5)	2 (0.4)	1 (0.2)	2 (1.6)	19 (3.2)	7 (3.0)	72 (4.3)
Maine	94 (0.5)	0 (0.1)	2 (0.3)	1 (0.2)	3 (0.4)	1 (1.5)	2 (1.6)	19 (4.1)	78 (4.5)
Maryland	60 (1.8)	29 (1.8)	6 (0.6)	3 (0.5)	1 (0.2)	21 (3.8)	13 (3.5)	3 (2.6)	63 (5.6)
Massachusetts	83 (1.1)	5 (1.0)	8 (1.5)	2 (0.4)	1 (0.2)	7 (2.3)	23 (3.5)	1 (1.3)	69 (4.3)
Michigan	73 (1.6)	18 (1.9)	5 (0.8)	1 (0.3)	2 (0.3)	7 (3.0)	19 (3.1)	14 (3.8)	60 (5.2)
Minnesota	91 (1.0)	2 (0.3)	3 (0.5)	2 (0.3)	1 (0.4)	7 (3.6)	0 (0.0)	20 (4.2)	72 (5.2)
Mississippi	49 (1.9)	44 (1.8)	6 (0.6)	0 (0.1)	1 (0.2)	3 (1.8)	6 (2.7)	12 (3.1)	79 (4.6)
Missouri	82 (1.5)	12 (1.4)	3 (0.3)	1 (0.2)	2 (0.3)	7 (2.8)	12 (2.4)	13 (3.6)	68 (4.8)
Nebraska	87 (1.1)	5 (0.9)	6 (0.7)	1 (0.2)	2 (0.4)	0 (0.0)	6 (0.9)	28 (4.3)	66 (4.5)
New Hampshire	91 (1.6)	1 (0.2)	3 (0.3)	1 (0.2)	1 (0.2)	4 (1.6)	0 (0.0)	5 (2.3)	92 (2.8)
New Jersey	61 (2.5)	17 (2.4)	14 (1.5)	6 (0.7)	1 (0.2)	8 (2.8)	24 (3.3)	3 (2.3)	64 (4.7)
New Mexico	44 (1.5)	2 (0.4)	49 (1.4)	1 (0.3)	4 (0.7)	5 (0.2)	6 (2.6)	6 (2.8)	84 (3.8)
New York	61 (2.7)	17 (2.2)	14 (2.0)	4 (0.6)	1 (0.3)	11 (3.3)	16 (5.1)	10 (3.5)	63 (6.7)
North Carolina	68 (1.4)	27 (1.3)	3 (0.3)	1 (0.2)	2 (0.4)	3 (1.0)	5 (2.2)	12 (3.8)	80 (4.3)
North Dakota	93 (0.8)	0 (0.1)	3 (0.3)	1 (0.2)	3 (0.7)	8 (1.8)	0 (0.0)	39 (4.1)	53 (3.9)
Ohio	80 (1.9)	14 (1.7)	4 (0.5)	1 (0.2)	2 (0.3)	6 (2.7)	17 (3.2)	21 (5.5)	56 (6.3)
Oklahoma	75 (1.6)	8 (1.1)	6 (0.6)	2 (0.3)	10 (1.0)	2 (1.8)	5 (2.5)	19 (4.1)	74 (5.1)
Pennsylvania	83 (1.4)	11 (1.6)	3 (0.7)	1 (0.3)	1 (0.3)	4 (2.1)	15 (3.5)	13 (3.7)	68 (5.0)
Rhode Island	81 (0.7)	6 (0.6)	8 (0.4)	3 (0.4)	2 (0.3)	7 (0.1)	12 (0.1)	0 (0.0)	81 (0.1)
South Carolina	58 (1.5)	35 (1.3)	6 (0.6)	1 (0.2)	1 (0.2)	3 (1.7)	6 (2.2)	4 (1.8)	87 (3.3)
Tennessee	75 (2.0)	21 (2.1)	3 (0.3)	0 (0.1)	1 (0.2)	5 (3.3)	7 (2.6)	6 (2.4)	82 (4.0)
Texas	48 (1.9)	12 (1.6)	36 (2.0)	3 (0.4)	1 (0.3)	10 (2.9)	18 (3.9)	6 (2.6)	67 (5.5)
Utah	90 (0.9)	1 (0.2)	7 (0.6)	2 (0.3)	2 (0.2)	13 (2.4)	5 (2.2)	10 (2.4)	72 (3.9)
Virginia	69 (1.9)	22 (1.6)	5 (0.6)	4 (0.5)	1 (0.2)	9 (2.4)	13 (3.0)	14 (4.3)	63 (5.4)
West Virginia	91 (0.9)	4 (0.8)	3 (0.3)	0 (0.1)	2 (0.3)	1 (0.9)	10 (1.9)	13 (3.4)	76 (3.7)
Wisconsin	86 (1.7)	7 (1.2)	4 (0.8)	1 (0.2)	2 (0.6)	11 (5.5)	5 (1.7)	25 (5.4)	59 (6.4)
Wyoming	86 (1.7)	1 (0.2)	9 (0.6)	1 (0.2)	4 (1.6)	0 (0.0)	10 (2.6)	13 (2.9)	76 (3.8)
TERRITORIES									
Guam	5 (0.5)	1 (0.3)	15 (0.9)	76 (1.1)	1 (0.1)	0 (0.0)	0 (0.0)	11 (0.2)	89 (0.2)
Virgin Islands	1 (0.4)	77 (1.1)	21 (0.9)	0 (0.1)	0 (0.2)	0 (0.0)	0 (0.0)	27 (0.2)	73 (0.2)

»The value for 1992 was significantly higher than the value for 1990 at about the 95 percent certainty level. «The value for 1992 was significantly lower than the value for 1990 at about the 95 percent certainty level. These notations indicate statistical significance from a multiple comparison procedure based on the 37 jurisdictions participating in both 1992 and 1990. If looking at only one state, then > and < also indicate differences that are significant. Statistically significant differences between 1990 and 1992 for the state comparison samples for the nation and regions are not indicated.

TABLE C.1 | Characteristics of NAEP Students by Race/Ethnicity and by Type of Community (continued)

PUBLIC SCHOOLS	Grade 8 - 1990								
	Percentage of Students by Race/Ethnicity					Percentage of Students by Type of Community			
	White	Black	Hispanic	Asian / Pacific Islander	American Indian	Advantaged Urban	Disadvantaged Urban	Extreme Rural	Other
NATION	70 (0.5)	16 (0.3)	10 (0.4)	2 (0.5)	2 (0.7)	10 (3.3)	10 (2.8)	10 (3.0)	70 (4.4)
Northeast	80 (4.2)	12 (4.2)	5 (1.2)	3 (1.1)	1 (0.3)	23 (7.3)	8 (5.7)	14(10.3)	55(11.2)
Southeast	63 (3.0)	32 (3.0)	3 (0.8)	1 (0.4)	0 (0.1)	0 (0.0)	2 (2.3)	9 (5.3)	89 (5.8)
Central	79 (2.6)	13 (3.2)	5 (1.0)	1 (0.4)	1 (0.4)	3 (3.1)	10 (4.3)	8 (6.0)	79 (7.7)
West	63 (1.9)	7 (2.0)	21 (1.5)	4 (1.3)	4 (2.3)	14 (8.5)	19 (7.5)	10 (3.8)	58(10.1)
STATES									
Alabama	64 (1.9)	29 (1.8)	5 (0.6)	1 (0.3)	1 (0.2)	10 (2.8)	12 (3.0)	12 (3.5)	66 (5.3)
Arizona	59 (1.8)	3 (0.4)	29 (1.3)	2 (0.3)	7 (1.5)	13 (2.7)	16 (4.0)	8 (3.0)	63 (4.7)
Arkansas	72 (1.5)	22 (1.5)	4 (0.4)	1 (0.2)	2 (0.3)	5 (2.1)	6 (2.1)	24 (3.3)	65 (4.4)
California	45 (1.8)	7 (0.8)	35 (1.4)	12 (1.1)	2 (0.4)	16 (4.5)	18 (4.5)	0 (0.0)	65 (5.9)
Colorado	73 (1.3)	4 (1.0)	19 (1.6)	2 (0.3)	2 (0.3)	29 (3.9)	6 (2.4)	15 (3.0)	50 (4.9)
Connecticut	77 (1.5)	10 (1.0)	10 (0.9)	2 (0.3)	1 (0.2)	33 (3.4)	14 (2.4)	0 (0.0)	53 (3.7)
Delaware	68 (1.0)	24 (0.9)	5 (0.5)	1 (0.2)	1 (0.3)	8 (0.1)	0 (0.0)	21 (0.2)	71 (0.2)
Dist. Columbia	3 (0.4)	84 (1.0)	10 (0.6)	1 (0.2)	2 (0.3)	17 (0.2)	67 (0.2)	0 (0.0)	17 (0.1)
Florida	60 (2.0)	20 (1.2)	17 (2.1)	2 (0.4)	1 (0.2)	15 (3.7)	18 (3.2)	8 (1.9)	59 (4.6)
Georgia	59 (1.8)	33 (1.7)	6 (0.6)	1 (0.2)	1 (0.1)	14 (3.4)	8 (2.5)	18 (3.3)	60 (5.0)
Hawaii	18 (0.8)	2 (0.3)	10 (0.6)	67 (1.0)	1 (0.2)	10 (0.1)	16 (0.2)	0 (0.0)	74 (0.2)
Idaho	90 (0.8)	0 (0.1)	6 (0.6)	1 (0.3)	2 (0.4)	4 (0.1)	3 (0.1)	27 (1.9)	67 (1.8)
Indiana	84 (1.2)	9 (1.2)	4 (0.7)	1 (0.3)	1 (0.3)	13 (3.5)	8 (3.0	17 (2.5)	62 (5.3)
Iowa	91 (0.7)	2 (0.7)	4 (0.4)	1 (0.2)	1 (0.3)	6 (2.1)	4 (2.2	37 (3.9)	53 (4.8)
Kentucky	85 (1.1)	9 (1.0)	4 (0.5)	1 (0.2)	1 (0.2)	7 (2.2)	10 (2.8)	33 (3.9)	49 (5.0)
Louisiana	55 (2.1)	38 (1.9)	5 (0.6)	1 (0.2)	1 (0.3)	8 (3.1)	23 (4.1)	14 (3.3)	54 (5.8)
Maine	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Maryland	59 (1.5)	28 (1.5)	7 (0.8)	4 (0.7)	1 (0.3)	28 (4.0)	18 (3.4)	4 (1.6)	50 (4.4)
Massachusetts	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Michigan	77 (1.4)	13 (1.1)	5 (0.6)	2 (0.4)	2 (0.5)	17 (3.7)	13 (3.4)	13 (2.5)	56 (4.8)
Minnesota	90 (0.9)	2 (0.5)	3 (0.4)	3 (0.4)	2 (0.5)	24 (3.3)	0 (0.0)	29 (4.6)	47 (5.3)
Mississippi	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Missouri	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Nebraska	88 (0.8)	5 (0.4)	5 (0.5)	1 (0.2)	1 (0.2)	9 (0.6)	4 (0.1)	39 (3.1)	49 (2.9)
New Hampshire	94 (0.6)	1 (0.2)	2 (0.4)	1 (0.2)	2 (0.2)	8 (0.5)	0 (0.0)	3 (0.6)	89 (0.8)
New Jersey	66 (2.0)	15 (2.0)	13 (1.0)	5 (0.6)	1 (0.2)	30 (4.5)	18 (2.5)	0 (0.0)	52 (4.8)
New Mexico	40 (1.3)	2 (0.4)	45 (1.3)	1 (0.3)	11 (0.8)	5 (0.1)	7 (0.1)	18 (0.9)	70 (0.9)
New York	60 (1.9)	17 (1.6)	17 (1.7)	4 (0.8)	1 (0.3)	15 (3.6)	29 (4.6)	3 (1.2)	53 (5.4)
North Carolina	62 (1.7)	30 (1.3)	5 (0.5)	1 (0.2)	3 (0.9)	4 (2.2)	4 (1.8)	17 (3.3)	75 (4.3)
North Dakota	91 (1.4)	1 (0.3)	3 (0.4)	1 (0.4)	5 (1.2)	9 (0.4)	3 (0.4)	37 (2.5)	50 (2.3)
Ohio	82 (0.9)	11 (0.8)	3 (0.4)	1 (0.3)	1 (0.3)	14 (3.3)	13 (1.7)	10 (2.2)	63 (4.2)
Oklahoma	74 (1.8)	11 (1.2)	5 (0.7)	2 (0.4)	9 (1.0)	11 (2.9)	9 (2.9)	22 (3.5)	59 (5.2)
Pennsylvania	81 (2.5)	12 (2.3)	5 (0.8)	1 (0.2)	1 (0.3)	12 (2.4)	14 (3.3)	7 (2.7)	67 (4.3)
Rhode Island	83 (0.8)	5 (0.5)	8 (0.5)	2 (0.3)	1 (0.2)	19 (0.4)	17 (1.7)	0 (0.0)	63 (1.4)
South Carolina	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Tennessee	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Texas	47 (2.1)	13 (1.3)	36 (2.1)	2 (0.6)	1 (0.2)	15 (3.4)	17 (3.8)	9 (2.8)	59 (5.3)
Utah	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)	xxx (xxx)
Virginia	68 (1.5)	23 (1.5)	5 (0.5)	4 (0.4)	1 (0.2)	25 (3.9)	4 (1.3)	11 (1.7)	60 (4.3)
West Virginia	90 (0.7)	3 (0.5)	4 (0.4)	1 (0.2)	2 (0.3)	0 (0.0)	11 (2.7)	19 (4.0)	70 (4.8)
Wisconsin	85 (1.2)	8 (1.1)	4 (0.3)	2 (0.3)	1 (0.2)	7 (2.4)	10 (2.2)	24 (3.2)	60 (4.1)
Wyoming	86 (0.8)	1 (0.2)	9 (0.6)	1 (0.2)	3 (0.4)	0 (0.0)	0 (0.0)	27 (0.8)	73 (0.8)
TERRITORIES									
Guam	7 (0.7)	1 (0.4)	19 (1.0)	72 (1.2)	1 (0.2)	0 (0.0)	0 (0.0)	26 (0.1)	74 (0.1)
Virgin Islands	2 (0.2)	77 (1.1)	20 (1.0)	0 (0.2)	1 (0.2)	0 (0.0)	0 (0.0)	19 (0.2)	81 (0.2)

(xxx) Did not participate in the 1990 Trial State Assessment.

TABLE C.2 | Population Characteristics from Non-NAEP Sources

	Per Capita Personal Income 1991	Gross State Product per School-Age Child 1989	Percent Minority Students 1986	Resident Population Per Square Mile 1990	Percent Public School Students in Large City Population 1987-88	Percent Students Free Lunch 1987	Status Dropout Rate, Persons Ages 16-19, 1990
NATION	$19,092	$113,935	30.0	70.3	13.2	24	11.2
STATES							
Alabama	15,518	83,707	38.0	79.6	0.0	36	12.6
Arizona	16,579	97,326	37.8	32.3	24.1	23	14.3
Arkansas	14,629	78,086	25.3	45.1	0.0	30	10.9
California	20,847	133,470	46.3	190.8	21.5	26	14.3
Colorado	19,358	109,934	21.3	31.8	11.0	17	9.6
Connecticut	26,022	167,036	22.8	678.4	13.7	14	9.2
Delaware	20,816	129,563	31.7	340.8	0.0	18	11.2
Dist. Columbia	24,063	432,560	---	9882.8	100.0	---	19.1
Florida	18,992	114,340	34.6	239.6	15.2	26	14.2
Georgia	17,436	100,914	39.3	111.9	6.7	28	14.1
Hawaii	21,190	129,422	76.5	172.5	0.0	22	7.0
Idaho	15,333	72,618	7.4	12.2	0.0	19	9.6
Indiana	17,179	98,886	11.3	154.6	5.5	15	11.4
Iowa	17,296	101,299	5.4	49.7	0.0	18	6.5
Kentucky	15,626	91,980	10.8	92.8	0.0	31	13.0
Louisiana	15,046	86,869	43.5	96.9	10.5	46	11.9
Maine	17,454	106,700	1.7	39.8	0.0	16	8.4
Maryland	22,189	123,380	40.3	489.2	15.0	18	11.0
Massachusetts	23,003	156,700	16.3	767.6	7.5	16	9.5
Michigan	18,655	103,252	23.6	163.6	11.1	18	9.9
Minnesota	19,125	116,803	6.1	55.0	5.9	15	6.1
Mississippi	13,328	67,376	56.1	54.9	0.0	52	11.7
Missouri	17,928	106,924	16.6	74.3	7.5	22	11.2
Nebraska	17,718	102,016	8.6	20.5	0.0	18	6.6
New Hampshire	21,760	125,662	2.0	123.7	0.0	8	9.9
New Jersey	25,666	158,145	30.9	1042.0	10.7	17	9.3
New Mexico	14,644	79,419	56.9	12.5	0.0	35	10.8
New York	22,471	144,898	31.6	381.0	39.2	30	10.1
North Carolina	16,853	110,335	31.6	136.1	0.0	25	13.2
North Dakota	15,605	87,062	7.6	9.3	0.0	19	4.3
Ohio	17,770	103,902	16.9	264.9	7.4	18	8.8
Oklahoma	15,541	84,559	21.0	45.8	11.8	24	9.9
Pennsylvania	19,306	111,769	15.6	265.1	13.2	19	9.4
Rhode Island	19,207	116,093	12.1	960.3	16.1	17	12.9
South Carolina	15,467	87,174	45.4	115.8	0.0	32	11.9
Tennessee	16,486	100,838	23.5	118.3	21.6	26	13.6
Texas	17,230	97,886	49.0	64.9	24.3	30	12.5
Utah	14,625	61,700	6.3	21.0	0.0	14	7.9
Virginia	20,082	131,373	27.4	156.3	0.0	17	10.4
West Virginia	14,301	79,099	4.1	74.5	0.0	28	10.6
Wisconsin	17,939	104,536	13.4	90.1	8.4	17	6.9
Wyoming	16,937	111,150	9.3	4.7	0.0	14	6.3

Per Capita Income 1991 -- Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, August 1992. Data are estimates and are reported in current dollars. **Gross State Product per School-Age Child, 1989** -- Source: Gross State Product figures: *Survey of Current Business*, Volume 71, No. 12, December 1991, U.S. Department of Commerce; School-Age Child figures: *Current Population Report*, Series P-25, No. 1058, U.S. Bureau of the Census. Note: Calculated using 1989 Census data for resident persons age 5-17 years. **Percent Minority Students, 1986** -- Source: *Elementary and Secondary School Civil Rights Survey, State Summaries of Projected Data*, U.S. Department of Education, Office of Civil Rights. Reprinted in *Results in Education 1989*, National Governors' Association. **Resident Population per Square Mile, 1990** -- Source: Table 26 in *Statistical Abstract of the United States 1991*, Washington, DC, (111th Edition), U.S. Bureau of the Census. **Percent Public School Students in Large City Population, 1987-88** -- Source: *Assigning Type of Locale Codes to the 1987-88 CCD Public School Universe*, U.S. Department of Education, National Center for Education Statistics. Reprinted in *Results in Education 1989*, Washington, DC, National Governors' Association. **Percent Students Free Lunch, 1987** -- Source: Calculated from data provided by U.S. Department of Agriculture, Food and Nutrition Service, 1987; and *Statistical Abstract of the United States 1987*. Reprinted in *Results in Education 1989*, Washington, DC, National Governors' Association. **Status Dropout Rate, Persons Ages 16-19, 1990** -- Source: 1990 Census datain Table C1 in *Dropout Rates in the United States 1991*, U.S. Department of Education, National Center for Education Statistics, 1992.

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TABLE C.3 | School System Characteristics from Non-NAEP Sources

	Current Expenditure Per Pupil 1988-89	Percent of Total Current Expenditures, by Function			Pupil-Teacher Ratio Fall 1989	Average Annual Teacher Salary	
		Instruction	Support Services	Non-Instructional		(NEA) 1989-90	(AFT) 1989-90
NATION[1]	$4,639	61.7	35.0	3.3	17.2	$31,331	$31,315
STATES							
Alabama	3,197	63.7	30.5	5.8	18.1	25,300	25,500
Arizona	3,902	58.5	39.2	2.3	18.9	29,402	29,402
Arkansas	3,273	61.7	33.7	4.7	17.0	22,352	22,471
California	4,121	59.2	37.8	3.0	22.4	37,998	37,625
Colorado	4,408	59.7	38.2	2.1	17.6	30,758	30,758
Connecticut	6,857	64.9	33.3	1.9	13.1	40,461	40,768
Delaware	5,422	67.0	30.6	2.4	16.4	33,377	33,377
Dist. Columbia	7,850	69.8	24.5	5.7	13.4	37,950	39,850
Florida	4,563	57.5	39.2	3.3	17.0	28,803	28,787
Georgia	3,852	64.5	33.5	2.1	18.3	28,006	28,013
Hawaii	4,121	61.9	33.1	5.0	19.1	32,047	32,252
Idaho	2,838	62.0	33.1	4.9	20.1	23,861	23,861
Indiana	4,284	62.3	35.5	2.2	17.5	30,378	30,978
Iowa	4,285	59.1	38.1	2.8	15.7	26,747	26,747
Kentucky	3,347	74.2	21.1	4.7	17.7	26,292	26,275
Louisiana	3,317	57.2	34.9	7.9	17.6	24,300	24,300
Maine	4,744	69.8	27.6	2.5	14.1	26,881	26,881
Maryland	5,758	62.2	35.9	2.0	16.8	36,601	36,481
Massachusetts	5,979	64.9	32.4	2.7	14.0	34,712	34,175
Michigan	5,116	57.0	40.7	2.3	19.7	36,010	36,427
Minnesota	4,755	62.5	32.9	4.6	17.2	32,190	32,190
Mississippi	2,874	63.0	29.1	7.9	18.2	24,364	24,365
Missouri	4,263	61.3	36.1	2.6	15.8	27,229	27,229
Nebraska	4,360	64.6	32.9	2.5	14.7	25,522	25,522
New Hampshire	4,807	64.3	34.4	1.3	16.2	28,986	28,986
New Jersey	7,549	64.0	33.2	2.8	13.5	35,676	35,676
New Mexico	3,473	57.5	37.3	5.2	18.3	25,120	25,302
New York	7,663	65.4	31.5	3.1	14.7	38,925	38,925
North Carolina	3,874	65.1	31.0	3.9	17.1	27,883	27,814
North Dakota	3,952	61.5	34.3	4.2	15.1	23,016	23,016
Ohio	4,649	58.3	38.5	3.1	17.4	31,218	30,567
Oklahoma	3,379	68.5	27.7	3.8	16.2	23,070	23,944
Pennsylvania	5,609	61.4	35.3	3.3	15.7	33,338	33,435
Rhode Island	5,976	67.2	30.2	2.6	14.5	36,057	36,057
South Carolina	3,736	61.7	33.1	5.1	17.0	27,217	26,638
Tennessee	3,491	70.9	22.5	6.6	19.1	27,052	27,052
Texas	3,877	60.3	35.7	3.9	16.7	27,496	27,400
Utah	2,579	66.0	30.2	3.8	24.8	23,686	23,652
Virginia	4,539	65.4	32.1	2.5	15.9	30,958	30,926
West Virginia	3,883	48.3	46.7	5.0	15.1	22,842	22,842
Wisconsin	5,266	62.8	35.3	1.8	15.9	31,921	32,600
Wyoming	5,375	60.2	38.1	1.8	14.5	28,188	28,991
TERRITORIES							
Guam	4,067	72.6	23.1	4.3	16.3	---	---
Virgin Islands	5,281	54.0	38.2	7.9	13.3	---	---

Current Expenditure per Pupil, 1988-89 -- Source: Table 159, "Current expenditure per pupil in average daily attendance in public elementary and secondary schools, by State: 1959-60 to 1988-89", *Digest of Education Statistics, 1991*. U.S. Department of Education, National Center for Education Statistics, Common Core of Data Surveys. Note: Amounts are in current dollars. **Percent of Total Current Expenditures, by Function** -- Source: Table 157, "Current expenditures for public elementary and secondary education, by function and State: 1988-89", *Digest of Education Statistics, 1991*. U.S. Department of Education, National Center for Education Statistics, Common Core of Data Surveys. Note: Excludes expenditures for State education agencies. **Pupil-Teacher Ratio, Fall 1989** -- Source: Table 61, "Teachers, enrollment, and pupil-teacher ratios in public elementary and secondary schools, by State: Fall 1985 to 1989", *Digest of Education Statistics, 1991* , U.S. Department of Education, National Center for Education Statistics, Common Core of Data Surveys. [1]U.S. total includes imputation for nonreporting State. Note: Teachers reported in full-time equivalents. **Average Annual Teacher Salary (NEA)** -- Source: *Estimates of School Statistics, 1990-91*, National Education Association; and Table 73, "Estimated average annual salary of teachers in public elementary and secondary schools, by State: 1969-70 to 1989-90", *Digest of Education Statistics, 1991*, U.S. Department of Education, National Center for Education Statistics. **Average Annual Teacher Salary (AFT)** -- Source: *Survey and Analysis of Salary Trends, 1990*, American Federation of Teachers; and Table 74, "Minimum and average teacher salaries, by State: 1989-90", *Digest of Education Statistics, 1991*, U.S. Department of Education, National Center for Education Statistics. Note: Data in this table reflect results of surveys conducted by the American Federation of Teachers. Because of differing survey and estimation methods, these data are not entirely comparable with figures appearing in other columns and tables.

TABLE C.4 | Curricula and School Policies from Non-NAEP Sources

	Length of the School Year 1990	Length of the School Day, Grades 7-8 1990	Units Required in Mathematics 1990	Units Required in Science 1990	Competency Test Required 1990
STATES					
Alabama	175	6.0	2.0	2.0	YES
Arizona	175	6.0	2.0	2.0	NO
Arkansas[1]	178	5.5	2.0[1]	2.0[1]	YES
California	180	5.0	2.0	2.0	YES
Colorado	1080 HRS	-.-	-.-	-.-	NO
Connecticut	180	4.0	3.0	2.0	NO
Delaware	180	6.0	2.0	2.0	NO
Dist. Columbia	180	6.0	2.0	2.0	NO
Florida	180	5.0	3.0	3.0	NO
Georgia	180	6.0	2.0	2.0	YES
Hawaii	180	6.0	2.0	2.0	YES
Idaho	180	5.5	2.0	2.0	NO
Indiana	180	6.0	2.0	2.0	NO
Iowa	180	5.5	-.-	-.-	NO
Kentucky	175	6.0	3.0	2.0	NO
Louisiana	180	5.5	3.0	3.0	YES
Maine	175	5.0	2.0	2.0	YES
Maryland	180	6.0	3.0	2.0	NO
Massachusetts	180	5.0	-.-	-.-	NO
Michigan	180	-.-	-.-	-.-	NO
Minnesota	175	6.0	1.0	1.0	NO
Mississippi	180	-.-	2.0	2.0	YES
Missouri	174	3.0-7.0	2.0	2.0	NO
Nebraska	1010 HRS	-.-	-.-	-.-	YES
New Hampshire	180	5.5	2.0	2.0	NO
New Jersey	180	4.0	3.0	2.0	YES
New Mexico	180	6.0	3.0	2.0	YES
New York	180	5.5	2.0	2.0	YES
North Carolina	180	5.5	2.0	2.0	YES
North Dakota	180	5.5	2.0	2.0	NO
Ohio	182	5.5	2.0	1.0	NO
Oklahoma	175	6.0	2.0	2.0	NO
Pennsylvania	180	5.5	3.0	3.0	NO
Rhode Island	180	5.5	2.0	2.0	NO
South Carolina	180	6.0	3.0	2.0	YES
Tennessee	180	6.5	2.0	2.0	YES
Texas	175	7.0	3.0	2.0	YES
Utah	180	5.5	2.0	2.0	NO
Virginia[1]	180	5.5	2.0[1]	2.0[1]	NO
West Virginia	180	5.5	2.0	2.0	NO
Wisconsin	180	6.5	2.0	2.0	NO
Wyoming	175	6.0	-.-	-.-	NO
TERRITORIES					
Guam	-.-	-.-	-.-	-.-	-.-
Virgin Islands	180	6.5	2.0	2.0	-.-

Source: Council of Chief State School Officers' 1990 Policies and Practices Questionnaire, Tables 13, 14, and 16 in *State Education Indicators, 1990*, Washington, DC, Council of Chief State School Officers. (-.-) No statewide policy. [1] A fifth unit of either science or mathematics is required.

APPENDIX D

Overview of Procedures Used in the 1992 Mathematics Assessments

Introduction

This appendix provides further information about the methods and procedures used in NAEP's 1992 mathematics assessment. The forthcoming *NAEP 1992 Technical Report* and the *Technical Report for the 1992 Mathematics Trial State Assessment* provide more extensive information about procedures.

NAEP's 1992 Mathematics Assessment

As described earlier in the report, the framework underlying NAEP's 1992 mathematics assessment was initially developed for the 1990 assessment and subsequently approved for use in both assessments by the National Assessment Governing Board. It was developed through a consensus process managed by the Council of Chief State School Officers, and the items were developed through a similarly broad-based process managed by Educational Testing Service. The development of the mathematics assessments, including the Trial State Assessment Program, benefited from the involvement of hundreds of representatives from State Education Agencies who attended numerous NETWORK meetings; served on committees; reviewed the framework, objectives, and questions; and in general, provided important suggestions on all aspects of the program.

The mathematics assessment framework is a five-by-three matrix specifying five content areas -- Numbers and Operations; Measurement; Geometry; Data Analysis, Statistics, and Probability; and Algebra and Functions, plus three process or ability areas. These include Conceptual Understanding, Procedural Knowledge, and Problem Solving (for brief descriptions, see Chapter Three).[25] TABLES D.1 and D.2 show the approximate percentage distribution of questions by content area, mathematical ability, and grade.

TABLE D.1 Percentage Distribution of Questions by Grade and Content Area

Content Area	Grade 4	Grade 8	Grade 12
Numbers and Operations	45	30	25
Measurement	20	15	15
Geometry	15	20	20
Data Analysis, Statistics, and Probability	10	15	15
Algebra and Functions	10	20	25

TABLE D.2 Percentage Distribution of Questions by Grade and Mathematical Ability

Mathematical Ability	Grade 4	Grade 8	Grade 12
Conceptual Understanding	40	40	40
Procedural Knowledge	30	30	30
Problem Solving	30	30	30

Including all types of questions, the 1992 mathematics assessment for both the nation and states included 183 items at grade 4, 235 items at grade 8, and 231 items at grade 12. At grade 4, 59 of the questions required students to construct brief answers and 5 required lengthier explanations of the reasoning used. There were 99 multiple-choice questions as part of the main portion of the assessment and another 20 comprised the estimation portion of the assessment, which was administered via a paced audiotape timed to encourage students to estimate rather than "work out" their answers. At grade 8, there were 65 regular constructed-response questions and 6 requiring extended work. There also were 118 regular multiple-choice questions and 46 estimation multiple-choice questions. The twelfth-grade assessment contained 64 regular constructed-response questions, 6 extended constructed-response questions, 115 regular multiple-choice questions, and 46 estimation multiple-choice questions.

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[25] *Mathematics Objectives, 1990 Assessment* (Princeton, NJ: National Assessment of Educational Progress, Educational Testing Service, 1988).

The Assessment Design

Each student received a booklet containing a set of general background questions, a set of subject-specific background questions, three 15-minute segments or blocks of cognitive items, and a set of questions about his or her motivation and familiarity with the assessment material. At each grade level, the mathematics assessment included 16 different blocks of multiple-choice and constructed-response content questions. Students received different blocks of cognitive items in their booklets according to a careful plan. The 1992 assessment was based on an adaptation of matrix sampling called balanced incomplete block (BIB) spiraling -- a design that enables broad coverage of mathematics content while minimizing the burden for any one student. The balanced incomplete block part of the design assigns blocks of items to booklets and each pair of blocks appears together in at least one booklet. The spiraling part of the method cycles the booklets for administration, so that typically only a few students in any assessment session receive the same booklet.

Thirteen of the 16 blocks were assembled in accordance with this design, whereby the 13 blocks were presented in 26 booklets. Each block appeared in exactly six booklets, and each block appeared with every other block in at least one booklet. Students at grades 4 and 8 were given calculators to use with three of the 13 blocks and were trained in their use prior to the assessment. Students at grade 12 were given calculators to use with four of the 13 blocks. At the fourth grade, students were provided with four-function calculators and at grades 8 and 12, they were provided with scientific calculators. For another of the blocks, fourth-grade students were provided with a ruler, and eighth- and twelfth-grade students with a protractor/ruler. For still another of the blocks, at all three grades, students were given geometric shapes (manipulatives) to provide a concrete basis for determining their answers.

For the national assessment, the three remaining blocks at each grade used a paced-audiotape format to measure students' estimation skills and to move students through some word problems at grade 4 as well as material measuring data analysis, probability, and statistics and pre-algebra at the two upper grades. For the estimation block, the pacing method curtails time for computations and in more complex problem situations, it facilitates instances where students might have difficulty in reading the question or might spend too little or too much time on particular questions. The three blocks accompanied by the audiotape were assembled into one booklet at each grade. Of the 16 blocks, five were carried forward from 1990 to use in measuring trends across time, including four of the 13 BIB spiraled blocks and the estimation block.

The Trial State Assessments at grades 4 and 8 used the same 26 BIB-spiraled booklets as the national assessment at each of the two grades, including the blocks with special materials -- calculators, protractor/rulers, and geometric shapes -- and the four trend blocks to monitor changes in eighth-grade performance. The students within an assessment session were assigned booklets in the order in which the booklets were spiraled. Thus, students in any given session received a variety of different booklets and only a small number of students in the session received the same booklet. Following this administration, all students at both grades were given a special booklet with the estimation block. This special booklet was administered using the same paced audiotape developed for the national assessment. However, since the estimation block was not included in the grade 8 1990 Trial State Assessment, state-level trends are not available on that block. In total, there were 14 blocks of mathematics questions in the 1992 Trial State Assessment, which was twice the size of the 1990 program. The additional scope provided time for a greater number of, and more challenging constructed-response questions, some of which required students to spend as much as five minutes reasoning about and explaining their answers in words and diagrams.

Each booklet in the national and Trial State Assessments included three student background questionnaires. The first, consisting of general background questions, included questions about race/ethnicity, mother's and father's level of education, reading materials in the home, homework, attendance, academic expectations, and which parents lived at home. The second, consisting of mathematics background questions, included questions about instructional activities, courses taken, use of specialized resources such as calculators in mathematics class, and views on the utility and value of the subject matter. Students were given five minutes to complete each questionnaire, with the exception of the fourth graders, who were given more time because the items in the general questionnaire were read aloud for them. The third questionnaire, newly developed for 1992, followed the three cognitive blocks and contained five questions about students' motivation to do well on the assessment, their perceptions concerning the difficulty of the assessment, and their familiarity with types of questions included.

Teacher and School Questionnaires

As part of the 1992 mathematics assessment, including the Trial State Assessment Program, questionnaires were given to the mathematics teachers of the fourth- and eighth-grade students participating in the assessment and to the principal or other administrator in each participating school. An expert panel developed guidelines for the school and teacher questionnaires focusing on five educational areas: instructional content, instructional practices and experiences, teacher characteristics, school conditions and contexts, and conditions beyond school (i.e., home support, out-of-school activities, and attitudes).[26] Similar to the development of the materials given to students, the policy guidelines and the teacher and school questionnaires were prepared through an iterative process that involved extensive development, field testing, and review by external advisory groups. The questionnaires for mathematics teachers consisted of two parts. The first requested information about the teacher, such as race/ethnicity and gender as well as academic degrees held, teaching certification, training in mathematics, and ability to get instructional resources. In the second part, teachers were asked to provide information on each class they taught that included one or more students who participated in the assessment. The information included, among other things, the amount of time spent on mathematics instruction and homework, the extent to which textbooks or worksheets were used, the instructional emphasis placed on different mathematical topics, and the use of various instructional approaches. Because the sampling for the questionnaires was based on participating students, the responses to the mathematics teacher questionnaire do not necessarily represent all fourth- or eighth-grade mathematics teachers in the nation, or in a state or territory. Rather, they represent teachers of the representative sample of students assessed.

The extensive school questionnaire completed by principals or other administrators in the participating schools at all three grades, including the Trial State Assessment schools at grades 4 and 8, contained questions about the experience of individuals completing the questionnaire, school policies, course offerings, and special priority areas and resources, among other topics.

It is important to note that in this report, as in all NAEP reports, the student is always the unit of analysis, even when information from the teacher or school questionnaire is being reported. Using the student as the unit of analysis makes it possible to describe the instruction received by representative samples of students. Although this approach may provide a different perspective from that obtained by simply collecting information from teachers or schools, it is consistent with NAEP's goal of providing information about the educational context and performance of students.

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[26] National Assessment of Educational Progress, *1992 Policy Information Framework* (Princeton, NJ: National Assessment of Educational Progress, Educational Testing Service, 1992).

National Sampling

Sampling and data collection activities for the 1992 NAEP assessment were conducted by Westat, Inc. As with all NAEP national assessments, the results for the national samples were based on a stratified, three-stage sampling plan. The first stage included defining geographic primary sampling units (PSUs), which are typically groups of contiguous counties, but sometimes a single county; classifying the PSUs into strata defined by region and community type; and randomly selecting PSUs. For each grade, the second stage included listing, classifying, and randomly selecting schools, both public and private, within each PSU selected at the first stage. The third stage involved randomly selecting students within a school for participation. Some students who were selected (fewer than 6 percent) were excluded because of limited English proficiency or severe disability. In 1984, NAEP began collecting descriptive information on these excluded students in order to describe this group more fully. Further information about excluded students will be available in the *NAEP 1992 Technical Report*. The criteria for excluding students are provided in a subsequent section of this Appendix.

In 1992, the assessment was conducted from January through March, with some make-up sessions in early April. In 1990, the sample at each grade consisted of two equivalent half samples. The assessment was administered to the first half sample in the January to mid-March time frame, while it was administered to the second half sample in the mid-March to mid-May time frame. The first half sample from 1990 was used for trend purposes to provide a more precise basis for comparison in terms of the time of year of the assessment.

TABLE D.3 presents the student and school sample sizes and the cooperation and response rates for the national assessments.

TABLE D.3 Student and School Sample Sizes, 1992 and 1990

	Number of Participating Schools		Percent of Schools Participating		Number of Students		Percent of Student Completion	
Grade	1992	1990	1992	1990	1992	1990	1992	1990
4	527	527	86	88	8,738	8,902	93	93
8	406	406	84	87	9,432	8,888	89	89
12	304	304	81	81	8,499	8,862	81	81
Total	1,237	1,237			26,669	26,472		

Although sampled schools that refused to participate were occasionally replaced, school cooperation rates were computed based on the schools originally selected for participation in the assessments. The rates, which are based on schools sampled for all subjects assessed in 1992 (reading, writing, and mathematics) and 1990 (reading, science, and mathematics), are also the best estimates for the mathematics assessment. The student completion rates represent the percentage of students assessed of those invited to be assessed in mathematics, including those assessed in follow-up sessions, when necessary. In 1992, the BIB-spiraled portion of the assessment (13 blocks, 26 booklets) was administered to 7,176 students at grade 4; 7,663 students at grade 8; and 6,973 students at grade 12. In 1990, of the participating schools, 790 were public schools, and 447 were Catholic and other private schools. In 1992, 944 were public schools, and 638 were Catholic and other private schools.

Trial State Assessment Sampling

Identical to the procedures used for the 1990 Trial State Assessment Program at grade 8, for the 44 jurisdictions participating in the 1992 Program including both grades 4 and 8, the basic design was to select a sample of 100 public schools from each state, with a sample of 30 students drawn from each school. In the eighth grade, up to three sessions (90 students) were selected from large schools to better represent this school type. For states with small numbers of schools, and no or very small schools, all schools were included in the sample with certainty. In the fourth grade, all the eligible fourth-grade schools in the

District of Columbia, Delaware, and Guam were taken into the sample with certainty. In the eighth grade, all the eligible schools were taken from the District of Columbia, Delaware, Hawaii, Rhode Island, Guam, and the Virgin Islands.

In states where a sample of schools was drawn, schools were stratified by urbanicity, minority strata (which varied by state and urbanicity level), and median income. Special procedures were used for small schools and for identifying and including new schools in the sampling frame for each jurisdiction. To minimize the potential for nonresponse bias, substitutes for nonparticipating schools were selected on a one-by-one basis to be similar to the original school in terms of urbanicity, percent Black enrollment, percent Hispanic enrollment, median household income, and total fourth- or eighth-grade enrollment. Furthermore, the substitute school was selected from the same district whenever possible.

A systematic equal probability sample of the desired number of students (usually 30, but sometimes more) was drawn from each school, yielding a sample size in excess of 2,500 students for each participating state and territory. The state assessments were conducted during February.

Full information about school and student participation rates for each state (including the District of Columbia) and territory is contained in Appendix B. Appendix B also contains comparable information for the national and regional subsamples used in this report as a basis for comparison to states and territories. More specifically, these results are based only on students attending public schools (not private schools).

Excluded Students

It is NAEP's intent to assess all selected students. Therefore, all selected students who are capable of participating in the assessment should be assessed. However, some students sampled for participation in NAEP are excluded from the sample according to carefully defined criteria. Specifically, some of the students identified as having Limited English Proficiency (LEP) or having an Individualized Education Plan (IEP) may be incapable of participating meaningfully in the assessment. These students are identified as follows:

LEP students may be excluded if:

- The student is a native speaker of a language other than English; AND
- He or she has been enrolled in an English-speaking school for less than two years; AND
- The student is judged to be incapable of taking part in the assessment.

IEP students may be excluded if:

- The student is mainstreamed less than 50 percent of the time in academic subjects and is judged to be incapable of taking part in the assessment, OR
- The IEP team has determined that the student is incapable of taking part meaningfully in the assessment.

When there is doubt, the student is included in the assessment.

For each student excluded from the assessment, including those in the 1990 and 1992 Trial State Assessment Programs, school personnel complete a questionnaire about the characteristics of that student and the reason for exclusion.

Data Collection

As with all NAEP assessments, data collection for the 1992 assessment was conducted by a trained field staff. For the national assessment, this was accomplished by Westat staff. However, in keeping with the legislative requirements of the Trial State Assessment Program, the state mathematics assessments involving approximately 111,000 fourth graders and 109,000 eighth graders in about 9,000 schools were conducted by personnel from each of the participating states. NAEP's responsibilities included selecting the sample of schools and students for each participating state, developing the administration procedures and manuals, training the personnel who would conduct the assessments, and conducting an extensive quality assurance program.

Each participating state and territory was asked to appoint a State Coordinator to be the liaison between NAEP and participating schools. The State Coordinator was asked to gain cooperation of the selected schools, assist in scheduling, provide information necessary for sampling, and notify personnel about training. At the local school level, the administrators, usually school or district staff, were responsible for attending training, identifying excluded students, distributing school and teacher questionnaires, notifying sampled students and their teachers, administering the assessment session, completing the necessary paperwork, and preparing the materials for shipment.

Westat staff trained assessment administrators within the states in three and one-half hour sessions that included a videotape and practice exercises to provide uniformity in procedures. Almost 10,000 persons who were to be assessment administrators were trained in about 500 training sessions around the nation.

To provide quality control across states, a randomly selected 50 percent of the state assessment sessions were monitored by approximately 400 quality control monitors, who were also trained Westat staff. The identity of the schools to be monitored was not revealed to state, district, or school personnel until shortly before the assessment was to commence. The analysis of the results for the unmonitored schools as compared to the monitored schools yielded no systematic differences that would suggest different procedures were used. See the *Technical Report for the 1992 Trial State Mathematics Assessment* for details and results of this analysis.

Scoring

Materials from the 1992 assessment, including the Trial State Assessment Program, were shipped to National Computer Systems in Iowa City for processing. Receipt and quality control were managed through a sophisticated bar-coding and tracking system. After all appropriate materials were received from a school, they were forwarded to the professional scoring area, where the responses to the open-ended items were evaluated by trained staff using guidelines prepared by NAEP. Each open-ended question had a unique scoring guide that defined the criteria to be used in evaluating students' responses. Of the regular constructed-response items, some were scored right/wrong, but the majority included several different categories of correct and incorrect responses. The extended constructed-response questions were evaluated on a scale of 1 to 5, permitting degrees of partial credit to be given. For the national mathematics assessment and the Trial State Assessment Program approximately 4 million students responses were scored, including a 20 percent reliability sample. The overall percentage of agreement between readers for both the national and trial state assessment reliability samples was 94 percent. For the constructed-response questions contained in the trend blocks, training was conducted using materials and scoring guides identical to those used for the 1990 assessment. To provide information about reliability between assessment years, 100 booklets from each of the 40 states that participated in the 1990 Trial State Assessment Program were chosen at random to be scored again in 1992. Based on the 4,000 responses to each of the 25 questions rescored in 1992, the exact percentage of agreement was 96 percent. Subsequent to the professional scoring, the booklets were scanned, and all information was transcribed to the NAEP database at ETS. Each processing activity was conducted with rigorous quality control.

Data Analysis and IRT Scaling

After the assessment information had been compiled in the database, the data were weighted according to the population structure. The weighting for the national and state samples reflected the probability of selection for each student as a result of the sampling design, adjusted for nonresponse. Through poststratification, the weighting assured that the representation of certain subpopulations corresponded to figures from the U.S. Census and the Current Population Survey.[27]

Analyses were then conducted to determine the percentages of students who gave various responses to each cognitive and background question. Item response theory (IRT) was used to estimate average proficiency for the nation, various subgroups of interest within the nation, and for the states and territories.

IRT models the probability of answering an item correctly as a mathematical function of proficiency or skill. The main purpose of IRT analysis is to provide a common scale on which performance can be compared across groups, such as those defined by grades, and subgroups, such as those defined by race/ethnicity or gender. Because of the BIB-spiraling design used by NAEP, students do not receive enough questions about a specific topic to provide reliable information about individual performance. Traditional test scores for individual students, even those based on IRT, would lead to misleading estimates of

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For additional information about the use of weighting procedures in NAEP, see Eugene G. Johnson, "Considerations and Techniques for the Analysis of NAEP Data" in Journal of Educational Statistics (December 1989).

population characteristics, such as subgroup means and percentages of students at or above a certain proficiency level. Instead, NAEP constructs sets of plausible values designed to represent the distribution of proficiency in the population. A plausible value for an individual is not a scale score for that individual but may be regarded as a representative value from the distribution of potential scale scores for all students in the population with similar characteristics and identical patterns of item response. Statistics describing performance on the NAEP proficiency scale are based on these plausible values. They estimate values that would have been obtained had individual proficiencies been observed--that is, had each student responded to a sufficient number of cognitive items so that proficiency could be precisely estimated.[28]

For the 1992 assessment, a scale ranging from 0 to 500 was created to report performance for each content area. The scales summarize examinee performance across all three item types used in the assessment (multiple-choice, regular constructed-response, and extended constructed-response). In producing the scales, three distinct IRT models were used. Multiple-choice items were scaled using the three-parameter logistic model; regular constructed-response items were scaled using the two-parameter logistic model; and the extended constructed-response items were scaled using a generalized partial-credit model. Each content-area scale was based on the distribution of student performance across all three grades assessed in the 1990 national assessment (grades 4, 8, and 12) and had a mean of 250 and a standard deviation of 50. A composite scale was created as an overall measure of students' mathematics proficiency. The composite scale was a weighted average of the five content area scales, where the weight for each content area was proportional to the relative importance assigned to the content area in the specifications developed by the Mathematics Objectives Panel as shown in previously in TABLE D.1.

As described earlier, the NAEP proficiency scales make it possible to examine relationships between students' performance and a variety of background factors measured by NAEP. The fact that a relationship exists between achievement and another variable, however, does not reveal the underlying cause of the relationship, which may be influenced by a number of other variables. Similarly, the assessments do not capture the influence of unmeasured variables. The results are most useful when they are considered in combination with other knowledge about the student population and the educational system, such as trends in instruction, changes in the school-age population, and societal demands and expectations.

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[28] For theoretical justification of the procedures employed, see Robert J. Mislevy, ETS Research Report *Randomization-Based Inferences About Latent Variables form Complex Samples,"* Psychometrika, 56(2), 177-196. Service, 1988).

For computational details, see *Focusing the New Design: NAEP 1988 Technical Report* (Princeton, NJ: Educational Testing Service, National Assessment of Education Progress, 1990) and the *1990 NAEP Technical Report*.

Linking the Trial State Results to the National Results

Although the assessment booklets used in the Trial State Assessment Program were identical to those used in the national assessment, the various differences between the national and trial state assessments, including those in administration procedures, required that careful and complex equating procedures based on a special design be used to create an appropriate basis for comparison between the national and state results.

The results from the Trial State Assessment were linked to those from the national assessment through a linking function determined by comparing the results for the aggregate of students assessed in the Trial State Assessment (except those in Guam and the Virgin Islands) with the results for students in the State Aggregate Comparison subsample of the national assessment. This subsample is representative of the population of all grade-eligible public-school students within the aggregate of the 41 participating states and the District of Columbia who were assessed as part of the national assessment.

The linking was accomplished for each subscale by matching the mean and standard deviation of the subscale proficiencies across all students in the Trial State Assessment (excluding Guam and the Virgin Islands) to the corresponding subscale mean and standard deviation across all students in the State Aggregate Comparison subsample.

Reanalysis of 1990 Results

An enhanced version of the statistical procedures employed in 1990 was used to obtain results for the 1992 mathematics assessment. Preliminary research with simulated data and experience with selected reanalyses of previously reported 1990 NAEP data sets suggested that small, but consistent, differences in the results produced by the two sets of procedures would be obtained. The nature and magnitude of such differences would have little or no effect on state-to-state and state-to-nation comparisons. However, certain within-state comparisons between 1992 and 1990 would be affected to a degree that is not ignorable. In order to maintain the integrity of the 1990 NAEP mathematics scales for trend analysis, a decision was made to reanalyze the 1990 results and report revised figures. The 1990 estimates given in the 1992 NAEP mathematics reports, including the present report, are based on the reanalyzed 1990 results. In the vast majority of cases, the reanalyzed results will differ trivially, if at all, from those originally reported and the magnitudes of the differences between the original and reanalyzed results rarely exceed a standard error. Slightly larger, but still modest, differences between the original and reanalyzed results may be observed for the composite scale standard deviations and proportions of students at or above NAEP anchor levels. Since the process of setting achievement levels was newly conducted for 1992, these figures will also differ from results published in 1990.

Effects of Excluded and Absent Students

The aim of NAEP is to collect performance and other information about the students assessed and from these draw inferences to the characteristics of all students in a variety of populations, such as the grade 4 students in the United States. Although survey sampling techniques are used to draw samples of students that are representative of the populations of interest, not all students selected for the assessment actually participate.

Certain selected students are judged by school authorities as being incapable of meaningfully participating in the assessment. Students satisfying specific guidelines are allowed to be excluded from the assessment. Excluded students are a subset of those with an Individualized Education Plan or who are classified as Limited English Proficient for whom the assessment format would not permit a meaningful evaluation of their proficiency. Consequently, the assessment results pertain only to the population of students who, if selected, would not be excluded from the assessment.

In addition to students excluded from the assessment, other students will be absent from the assessment session. Absent students include those who left the session too early or arrived too late to take most of the assessment, those at school during the day of the assessment who failed to attend the session, and students absent from school due to illness, truancy, or other planned or unplanned absences. Absent students are included in the population to which proficiency measures pertain through the use of student-level nonresponse adjustments. These adjustments are made by forming weighting classes based on the characteristics of the students and of the schools they attend and then inflating the sampling weights of the assessed students within each weighting class to reflect the contribution of the absent students within that class. The representativeness of the NAEP results depends on the extent to which absent and assessed students within the same weighting class resemble each other in terms of their distributions of proficiency. Studies on the characteristics of absent students from various national assessments suggest that the bulk of the absent students do resemble the assessed students in terms of their proficiency.[29]

The representativeness of the assessment results are thus determined by the percents of excluded and absent students and by their characteristics. An additional complication occurs when measuring changes in achievement over time. The interpretation of comparisons of achievement between two or more assessments depends on the comparability of the populations assessed at each point in time. For example, even if the proficiency distribution of the entire population at time 2 was unchanged from that at time 1, an increase in the rate of exclusion would produce an apparent gain in the reported average proficiencies between the two time points if the excluded students tend to be lower performers.

Tables D.4 and D.6 provide information about the potential effects of exclusion and absenteeism on the 1990 and the 1992 national mathematics results. Each table is for one of the grades 4, 8, or 12 and shows:

> 1) Selected percentiles of the distribution of overall mathematics proficiency for each year. These are the reported percentiles and are based only on the nonexcluded students with weighting class nonresponse adjustments for the absent students. Also included are the between-year differences in the percentiles.
>
> 2) The percentages of students excluded or absent from the assessment for each year.
>
> 3) Recomputed percentiles for the distribution of all students (assessed, excluded, and absent) under the assumption that all excluded and all absent students, had they been assessed, would have scored below the 25th percentile of all students. The selected students original sampling weights (before nonresponse adjustment) were used in these calculations. These percentiles provide a lower bound to what the actual percentiles would be if all students were assessed.

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[29] Keith F. Rust and Eugene G. Johnson, Sampling and Weighting in the National Assessment, Journal of Educational Statistics, 1992, 111-129.

The tables show that the exclusion rates increased between 1990 and 1992 at all three grades but that the absentee rate decreased. As is to be expected, the combined impact of assuming all excluded and absent students would score below the 25th percentile is to reduce the percentiles, with the greatest reduction occurring for the lower percentiles. More to the point for the measurement of change across time is that the between-year differences in the recomputed percentiles are generally close to the between-year differences for the reported percentiles, particularly for grades 4 and 8, and especially when the standard errors of the percentiles are taken into account. Consequently, changes in exclusion and absentee rates generally had minimal impact on the measurement of changes in the distribution of proficiency between 1990 and 1992.

TABLE D.4 Percentiles of Overall Mathematics Proficiency Under Two Treatments of Excluded and Absent Students, Grade 4

	A: Percentiles for nonexcluded students with nonresponse adjustment for absent students*					Percent	
	25th	50th	75th	90th	95th	excluded	absent
1992	197.1(1.0)	220.1(1.0)	241.1(1.2)	258.9(0.8)	269.4(1.5)	6.7	6.2
1990	192.8(1.0)	213.9(1.1)	234.7(1.1)	253.2(1.5)	263.9(1.7)	5.2	6.8
difference	4.3	6.1	6.4	5.7	5.5	1.5	-0.6
	B: Percentiles assuming that all excluded and absent students would score below the 25th percentile						
	25th	50th	75th	90th	95th		
1992	184.3	214.9	238.4	257.3	266.5		
1990	181.4	209.3	232.0	251.6	260.9		
difference	2.9	5.6	6.4	5.7	5.6		

* standard errors in parentheses

TABLE D.5 **Percentiles of Overall Mathematics Proficiency Under Two Treatments of Excluded and Absent Students, Grade 8**

	A: Percentiles for nonexcluded students with nonresponse adjustment for absent students*					Percent	
	25th	50th	75th	90th	95th	excluded	absent
1992	242.3(1.3)	268.5(1.4)	293.8(0.9)	314.6(1.0)	326.3(1.8)	5.9	10.2
1990	238.7(1.8)	263.6(1.2)	288.0(1.1)	307.1(1.9)	319.2(1.6)	5.3	10.6
difference	3.6	4.9	5.8	7.5	7.1	0.6	-0.4
	B: Percentiles assuming that all excluded and absent students would score below the 25th percentile						
	25th	50th	75th	90th	95th		
1992	225.2	260.7	289.6	311.1	323.5		
1990	220.8	256.4	284.0	303.8	316.0		
difference	4.4	4.3	5.6	7.3	7.5		

* standard errors in parentheses

TABLE D.6 **Percentiles of Overall Mathematics Proficiency Under Two Treatments of Excluded and Absent Students, Grade 12**

	A: Percentiles for nonexcluded students with nonresponse adjustment for absent students*					Percent	
	25th	50th	75th	90th	95th	excluded	absent
1992	275.0(1.4)	299.9(1.2)	323.2(1.3)	342.6(1.3)	353.6(1.3)	4.1	17.6
1990	269.9(1.3)	295.5(1.5)	319.2(1.4)	339.6(1.6)	350.5(3.1)	3.6	19.3
difference	5.1	4.4	4.0	3.0	3.1	0.5	-1.7
	B: Percentiles assuming that all excluded and absent students would score below the 25th percentile						
	25th	50th	75th	90th	95th		
1992	250.8	289.8	318.2	339.5	351.0		
1990	241.8	284.3	313.1	335.6	348.1		
difference	9.0	5.5	5.1	3.9	2.9		

* standard errors in parentheses

NAEP Reporting Groups

This report contains results for the nation, participating states, and groups of students within the nation and states defined by shared characteristics. The definitions for subgroups as defined by race/ethnicity, size and type of community, parents' education level, gender, and region follow.

Race/Ethnicity. Results are presented for students of different racial/ethnic groups based on the students' self-identification of race/ethnicity according to the following mutually exclusive categories: White, Black, Hispanic, Asian/Pacific Islander, and American Indian (including Alaskan Native). Based on criteria described in the following section, at least 62 students in a particular subpopulation must participate in order for the results for that subpopulation to be considered reliable. State results for racial/ethnic groups with fewer than 62 students are not reported. For the nation, some racial/ethnic group results are not reported for background variables, because this further breakdown results in too few students. However, the data for all students, regardless of whether their racial/ethnic group was reported separately, were included in computing the overall national or state level results.

Type of Community. Results are provided for four mutually exclusive community types -- advantaged urban, disadvantaged urban, extreme rural, and other -- as described below. According to information about parents' occupation obtained from the Principal's Questionnaire completed by each sampled school, indices are developed such that for each assessment approximately the 10 percent of the most extreme advantaged urban, disadvantaged urban, and rural schools are classified into the first three categories. The remaining approximately 70 percent of the schools are classified into the "other" category. Reporting of results by each type of community was subject to the procedure based on a minimum student sample size of 62.

Advantaged Urban: Students in this group reside in metropolitan statistical areas and attend schools where a high proportion of the students' parents are in professional or managerial positions.

Disadvantaged Urban: Students in this group reside in metropolitan statistical areas and attend schools where a high proportion of the students' parents are on welfare or are not regularly employed.

Extreme Rural: Students in this group do not reside in metropolitan statistical areas. They attend schools in areas with a population below 10,000 where many of the students' parents are farmers or farm workers.

Other: Students in the "Other" category attend schools in areas other than those defined as advantaged urban, disadvantaged urban, or extreme rural.

Because of the methods underlying the development of this background variable, the cutpoints for the indices defining approximately the most extreme 10 percent of the advantaged urban, disadvantaged urban, and rural schools can change from assessment to assessment. Thus, to see if this had an impact on the trends from 1990 to 1992, in particular, the significant decline in average proficiency for the eighth graders attending schools in disadvantaged urban communities, NAEP also analyzed the results using the 1990 indices. The findings are shown below in Table D.7.

TABLE D.7 Average Mathematics Proficiency by Type of Community Using 1990 Criteria

	Grade 4		Grade 8		Grade 12	
	Percentage of Students	**Average Proficiency**	**Percentage of Students**	**Average Proficiency**	**Percentage of Students**	**Average Proficiency**
Advantaged Urban						
1992 Using 1992 Index	12(1.8)	237(2.1)	10(1.8)	288(3.6)	12(2.1)	316(2.6)
1992 Using 1990 Index	12(1.8)	238(2.1)	13(1.9)	287(3.0)	12(2.1)	316(2.6)
1990	11(1.5)	231(3.0)!	11(2.9)	280(3.2)!	9(2.8)	306(6.2)!
Disadvantaged Urban						
1992 Using 1992 Index	9(1.4)	193(2.8)	9(1.3)	238(2.6)<	10(1.4)	279(2.4)
1992 Using 1990 Index	13(1.7)	197(2.1)	14(1.6)	248(3.6)	10(1.4)	279(2.4)
1990	10(1.5)	195(3.0)	10(2.5)	249(3.8)!	10(2.7)	276(6.0)!
Extreme Rural						
1992 Using 1992 Index	12(2.2)	216(3.6)	9(2.6)	267(4.6)!	12(1.6)	293(1.9)
1992 Using 1990 Index	12(2.2)	216(3.6)	8(2.3)	264(4.7)!	14(1.9)	294(1.9)
1990	10(1.9)	214(4.9)	9(2.8)	257(4.4)!	10(3.2)	293(3.3)!
Other						
1992 Using 1992 Index	66(3.0)	219(0.9)>	72(3.1)	268(1.1)>	66(3.0)	300(0.9)>
1992 Using 1990 Index	63(3.2)	220(0.9)>	65(3.4)	269(1.3)>	64(3.2)	300(0.9)>
1990	70(3.6)	213(1.1)	70(3.9)	262(1.7)	71(4.4)	295(1.3)

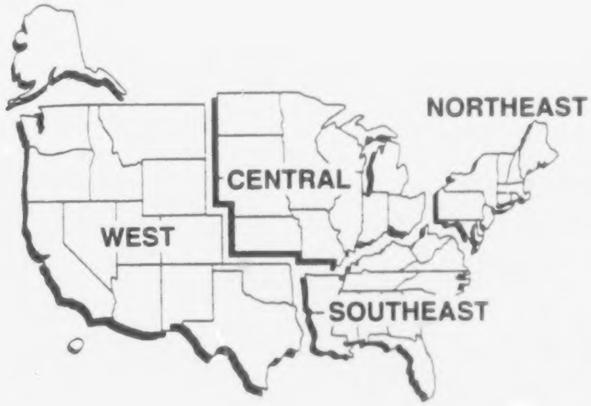
> The value for 1992 was significantly higher than the value for 1990 at about the 95 percent confidence level. < The value for 1992 was significantly lower than the value for 1990 at about the 94 percent confidence level. ! Interpret with caution -- the nature of the sample does not allow accurate determination of the variability of this estimated statistic. The standard errors of the estimated percentages and proficiencies appear in parentheses. It can be said with 94 percent certainty for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. In comparing two estimates, one must use the standard error of the difference (see Appendix for details).

The results show that average proficiency by type of community in 1992 was virtually the same regardless of which method was used to determine the index cutpoints at both grades 4 and 12. However, at grade 8, for students attending schools in disadvantaged urban areas the average proficiency differs by the approach to defining the variable. Using the criteria of approximately the 10 percent extreme disadvantaged urban schools, there was a decline in average proficiency for these students between 1990 and 1992. Using the same criteria as were used in 1990 there appeared to be a larger (but not statistically significant) percentage of students attending schools in disadvantaged urban communities, and as a whole, their average proficiency was about the same between the two assessments. Nevertheless, for the most extreme percentage of students, they were more disadvantaged according to the NAEP criteria and had lower average mathematics proficiency.

Parents' Education Level. Students were asked to indicate the extent of schooling for each of their parents -- did not finish high school, graduated high school, had some education after high school, or graduated college. The response indicating the higher level of education for either parent was selected for reporting.

Gender. Results are reported separately for males and females. Gender was reported by the student.

Region. The United States has been divided into four regions: Northeast, Southeast, Central, and West. States in each region are shown on the following map.



Minimum Subgroup Sample Sizes

As described earlier, results for mathematics proficiency and background variables were tabulated and reported for groups defined by race/ethnicity and type of community, as well as by gender and parents' education level. However, in many states or territories and for some regions of the country, the number of students in some of these population subgroups was not sufficiently high to permit accurate estimation of proficiency and/or background variable results. As a result, data are not provided for the subgroups with very small sample sizes. For results to be reported for any subgroup, a minimum sample size of 62 students was required. This number was determined by computing the sample size required to detect an effect size of .2 at the 5 percent significance level, with a probability of .8 or greater.

Estimating Variability

Because the statistics presented in this report are estimates of group and subgroup performance based on samples of students, rather than the values that could be calculated if every student in the nation answered every question, it is important to have measures of the degree of uncertainty of the estimates. Two components of uncertainty are accounted for in the variability of statistics based on proficiency: the uncertainty due to sampling only a relatively small number of students and the uncertainty due to sampling only a relatively small number of mathematics questions. The variability of estimates of percentages of students having certain background characteristics or answering a certain cognitive question correctly is accounted for by the first component alone.

In addition to providing estimates of percentages of students and their proficiency, this report also provides information about the uncertainty of each statistic. Because NAEP uses complex sampling procedures, conventional formulas for estimating sampling variability that assume simple random sampling are inappropriate and NAEP uses a jackknife replication procedure to estimate standard errors. The jackknife standard error provides a reasonable measure of uncertainty for any information about students that can be observed without error, but each student typically responds to so few items within any content area that the proficiency measurement for any single student would be imprecise. In this case, using plausible values technology makes it possible to describe the performance of groups and subgroups of students, but the underlying imprecision that makes this step necessary adds an additional component of variability to statistics based on NAEP proficiencies.[30]

The reader is reminded that, like all surveys, NAEP results are also subject to other kinds of errors including the effects of necessarily imperfect adjustment for student and school non-response and other largely unknowable effects associated with the particular instrumentation and data collection methods used. Nonsampling errors can be attributed to a number of sources: inability to obtain complete information about all selected students in all selected schools in the sample (some students or schools refused to participate, or students participated but answered only certain items); ambiguous definitions; differences in interpreting questions; inability or unwillingness to give correct information, mistakes in recording, coding, or scoring, data; and other errors of collecting, processing, sampling, and estimating missing data. The extent on nonsampling errors is difficult to estimate. By their nature, the impacts of such error cannot be reflected in the data-based estimates of uncertainty provided in NAEP reports.

Achievement Levels

Setting achievement levels is a method for setting standards on the NAEP assessment that identifies what students should know and should be able to do at various points along the proficiency scale. The method depends on securing and summarizing a set of judgmental ratings of expectations for student educational performance on specific items. The NAEP proficiency scale is a numerical index of students' performance in mathematics ranging from 0 to 500 and has 3 achievement levels-Basic, Proficient, and Advanced-mapped onto it for each grade level assessed.

In developing the threshold values for the levels, a broadly constituted panel of 68 judges-including 50 percent teachers, 20 percent non-teacher educators, and 30 percent non-educators-rated a grade-specific item pool using the Board's policy definitions for Basic, Proficient, and Advanced.[31] The policy definitions are as follows:

- **BASIC**—This level, below proficient, denotes partial mastery of the knowledge and skills that are fundamental for proficient work at each grade.

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[30] For further details, see Eugene G. Johnson, "Considerations and Techniques for the Analysis of NAEP Date" in *Journal of Educational Statistics* (December 1989).

[31] Non-educators represented business, labor, government service, parents, and the general public.

- **PROFICIENT**—This central level represents solid academic performance for each grade tested. Students reaching this level have demonstrated competency over challenging subject matter and are well prepared for the next level of schooling.

- **ADVANCED**—This higher level signifies superior performance beyond proficient grade-level mastery at each grade.

The policy definitions were operationalized by the judges in terms of specific mathematical skills, knowledge, and behaviors that were in accordance with the current mathematics assessment framework, and were generally agreed to be appropriate expectations for students in each grade at each level (See Chapter One). The judges' operationalized definitions were incorporated into lists of descriptors that represented what borderline students should be able to do at each of the policy levels. The purpose of having panelists develop their own operational definitions of the achievement levels was to ensure that all panelists would have a common understanding of borderline performances and a common set of content-based referents to use during the item rating process.

The judges (24 at grade 4, 22 at grade 8, and 22 at grade 12) each rated half of the items in the NAEP pool in terms of the expected probability that a student at a borderline achievement level would answer the item correctly, based on the judges' operationalization of the policy definitions and the factors that influence item difficulty. To assist the judges in generating consistently-scaled ratings, the rating process was repeated twice, with feedback. Information on consistency among different judges and on the difficulty of each item[32] was fed back into the first repetition (round 2), while information on consistency within each judge's set of ratings was fed back into the second repetition (round 3). The third round of ratings permitted the judges to discuss their ratings among themselves to resolve problematic ratings. The mean final rating of the judges aggregated across items yielded the threshold values in the percent correct metric. These cut scores were then mapped onto the NAEP scale (which is defined and scored using item response theory, rather than percent correct) to obtain the scale scores for the achievement levels. The judges' ratings, in both metrics, and their associated errors of measurement are shown below in TABLE D.8. The Board accepted the panel's achievement levels and, for reporting purposes, set final cutpoints one standard error (a measure of consistency among the judges ratings) below the mean levels.

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[32] Item difficulty estimates were based on a preliminary, partial set of responses to the national assessment.

TABLE D.8 Cutpoints for Achievement Levels

Grade	Level	Mean Percent Correct (Round 3)	Scale Score (From Mean Percents)	Standard Error of Scale Score	Scale Score Cutpoint for Reporting
4	Basic	39	213	1.9	211
4	Proficient	65	252	4.1	248
4	Advanced	84	284	4.0	280
8	Basic	48	258	2.4	256
8	Proficient	71	300	5.7	294
8	Advanced	87	336	4.8	331
12	Basic	44	291	4.2	287
12	Proficient	70	335	0.2	334
12	Advanced	88	367	0.7	366

After the ratings were completed, the judges for each grade level reviewed the operationalized descriptions developed by the judges of the other grade levels as well as their own descriptions and came up with achievement level descriptions that were generally acceptable to all three grade-group judges. However, the descriptions varied in format, sharpness of the language, and degree of specificity of the statements. Therefore, another panel at a subsequent validation meeting improved the wording and modified the language of the achievement level descriptions to reflect more closely the terminology of the *NCTM Standards* for mathematics.[33]

Finally, for each achievement level, exemplar items needed to be selected that reflected the kinds of tasks that examinees at or above the level were likely to be able to perform successfully. While the judges discussed items and made recommendations, the task of final selection was put to a subsequent validation panel. Several criteria were used to select items as candidates for exemplars. From the pool of items scheduled for public release, items were deleted that students were more likely to get wrong than right (p-value ≤ .50). Remaining items that did not match any of the descriptions were also deleted. A few items were deleted that did not have increasing p-values from Basic, to Proficient, to Advanced. The validation panels then reviewed the matched and classified item sets and selected exemplars based on the quality of the items, the way the items collectively represented the subscales, and the appropriateness of the items to the grade (for items administered to more than one grade). In Chapter One, FIGURES 1.1 through 1.3 provide the final descriptions of the three achievement levels for each grade, along with exemplar items to illustrate what students at each level should be able to perform. In principle, the descriptions of the levels, though based on the 1992 item pool, apply to the current assessment framework and will not change from year to year (that is, until the framework changes). However, the sample items reflective of the levels will need to be updated each time the assessment is administered.

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[33] National Council of Teachers of Mathematics, *Curriculum and Evaluation Standards for School Mathematics*, (Reston, VA: National Council of Teachers of Mathematics, 1989).

Scale Anchoring

As implemented for the 1990 and 1992 mathematics assessments, NAEP's scale anchoring procedure was based on comparing item-level performance by students at four levels on the 0 to 500 mathematics composite scale -- Levels 200, 250, 300, and 350.[34] In brief, the analyses delineated four sets of about 50 anchor items each that discriminated between adjacent performance levels on the scale.[35] The four sets of empirically derived anchor items were studied by panels of mathematics educators who carefully considered and articulated the types of knowledge, skills, and reasoning abilities that were demonstrated by correct responses to the items in each set. These descriptions, together with example anchor items, are then used in conjunction with the percentages of students performing at or above the four levels to convey a concise interpretation of the scale results.

To provide a sufficient pool of respondents at each anchor level for the analyses, students performing at Level 200 on the scale were more broadly defined as those whose estimated mathematics proficiency was between 187.5 and 212.5, students at 250 were defined as those with estimated proficiency between 237.5 and 262.5, those at 300 had estimated proficiencies between 287.5

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[34] Ina V.S. Mullis, John A. Dossey, Eugene H. Owen, and Gary W. Phillips, *The State of Mathematics Achievement, NAEP's 1990 Assessment of the Nation and the Trial Assessment of the States* (Washington, D.C.: U.S. Department of Education, 1991).

Ina V.S. Mullis, John A. Dossey, Eugene H. Owen, and Gary W. Phillips, *The 1992 Mathematics Report Card* (Washington, D.C.: U.S. Department of Education, 1993).

Albert E. Beaton and Nancy L. Allen, "Interpreting Scales through Scale Anchoring," *Journal of Educational Statistics*, 1992, 17, pp. 191-204.

[35] In 1992, 22 items anchored at Level 200 and another 8 almost anchored (also considered, since they nearly satisfied the anchoring criteria), at Level 250 there were 45 anchor items and 27 that almost anchored, at Level 300 there were 59 anchor items and 29 that almost anchored, and at Level 350 there 43 items and 34 that almost anchored. Of the 432 items included in the process, 165 did not anchor. In 1990, the totals of anchored and almost anchored items were: 43 at Level 200, 46 at Level 250, 64 at Level 300, and 43 at Level 350. Of the 275 items used in the process, 79 did not anchor.

and 312.5, and those at 350 between 337.5 and 362.5. In theory, anchor levels above 350 or below 200 could have been described; however, so few students in the assessment performed at the extreme ends of the scale that it was not possible to do so.

After identifying the fourth, eighth, and twelfth graders performing at the four anchor levels on the scale, two kinds of information were computed for these students for each item -- the actual number of students at each of the levels included in the analysis and the percentage of them who answered the item correctly (weighted in accordance with the sampling design). Thus, for each item, a p-value is computed separately for the students performing at each anchor level (four p-values for each item, as shown later in this section). These analyses were performed for each grade level at which the item was administered, and for the grade levels combined, if the item was administered at more than one grade level.

Based on the p-values for each anchor level, the following criteria were used to identify the items that discriminated between scale levels; that is, the items that students at one anchor level were more likely to answer correctly than were students at the next lower level.

Because it was the lowest level being defined, Level 200 was not analyzed in terms of the next lower level, but was examined for the percentage of students at that level answering the item correctly. More specifically, for an item to anchor at Level 200:

1) At least 65 percent of the students at Level 200 got the item right.

2) At least 100 students were available for the analysis.

The first criterion was established so that items associated with a level were those for which students at that level would have demonstrated at least some degree of success (at least 65 percent or about two-thirds), and therefore, those above the level would have an even higher degree of success. The second criterion provides stability for the p-value estimates.

For an item to anchor at the remaining levels, additional criteria had to be met. For example, to anchor at Level 250:

1) Sixty-five percent or more of the students at Level 250 got the item right.
2) At least 30 percent fewer students at Level 200 than at Level 250 got the item right.
3) At least 50 percent of the students at Level 200 got the item wrong.
4) At least 100 students at both Levels 200 and 250 were available for the analysis.

The same principles were used to identify anchor items at Levels 300 and 350. With the additional criteria, NAEP was trying to find items fairly likely to be answered correctly by answered correctly by students at one level, but unlikely at the levels below. Essentially, for any given anchor item, students at the anchor level are likely to answer the question correctly (65 percent or more likely), while those at the next lower level are less likely to answer the question correctly (at least 30 percent less likely). Also, students at the next lower level are somewhat likely to get the item wrong (at least half of them). Collectively, as identified through this procedure, the mathematics items at each anchor level represented advances in students' understandings from one level to the next -- mathematical topics where students at that level were more likely to answer items correctly than were students at the next lower level.

In preparation for use by panelists, the items were assembled with their full anchoring documentation and scoring guide (for open-ended items) and placed in notebooks by anchor-level order concluding with the "did not anchor" items. Within anchor level, the items were arranged in accordance with the classifications contained in the objectives framework. From 15 to 20 panelists, representing mathematicians; mathematics educators at the college, secondary, and elementary levels; and state and district mathematics supervisors; met for three days to systematically identify the mathematical knowledge, understanding, and problem-solving abilities demonstrated by the students in answering each item correctly. These descriptions were then summarized to develop the characterizations of performance for each anchor level. After being briefed in the anchoring process and given their assignment, panelists worked independently in two groups to analyze the items, draft their descriptions of performance for each anchor level, and select illustrative items to support their descriptions. On the third day, panelists and staff worked together as a whole to combine the two independently derived sets of descriptions.

Each of the two times this process was used, both groups agreed that the two drafts were very similar. However, the cross-validation process is helpful and permits more individuals to be involved in the process. It also should be noted that although the 1992 assessment was designed to measure trends from 1990, the anchoring process was conducted to update the descriptions to reflect some evolution in the 1992 items. Some items in the 1992 assessment had been carried forward from 1990, but others were newly developed measures of the mathematics framework intended to reflect improvements in ways of assessing mathematics achievement. Therefore, as anticipated, the 1992 descriptions are very similar to the 1990 descriptions, but there are variations.

Drawing Inferences from the Results

The use of *confidence intervals*, based on the standard errors, provides a way to make inferences about the population means and proportions in a manner that reflects the uncertainty associated with the sample estimates. An estimated sample mean proficiency ± 2 standard errors represents a 95 percent confidence interval for the corresponding population quantity. This means that with approximately 95 percent certainty, the average performance of the entire population of interest is within ± 2 standard errors of the sample mean.

As an example, suppose that the average mathematics proficiency of students in a particular group was 256, with a standard error of 1.2. A 95 percent confidence interval for the population quantity would be as follows:

Mean ± 2 standard errors = 256 ± 2 • (1.2) = 256 ± 2.4 =

256 - 2.4 and 256 + 2.4 = 253.6, 258.4

Thus, one can conclude with 95 percent certainty that the average proficiency for the entire population of students in that group is between 253.6 and 258.4.

Similar confidence intervals can be constructed for percentages, provided that the percentages are not extremely large (greater than 90) or extremely small (less than 10). For extreme percentages, confidence intervals constructed in the above manner may not be appropriate, however, procedures for obtaining accurate confidence intervals are quite complicated. Thus, comparisons involving extreme percentages should be interpreted with this in mind.

To determine whether there is a real difference between the mean proficiency (or proportion of a certain attribute) for two groups in the population, one needs to obtain an estimate of the degree of uncertainty associated with the difference between the proficiency means or proportions of these groups for the sample. This estimate of the degree of uncertainty -- called the standard error of the difference between the groups -- is obtained by taking the square of each group's standard error, summing these squared standard errors, and then taking the square root of this sum.

Similar to the manner in which the standard error for an individual group mean or proportion is used, the standard error of the difference can be used to help determine whether differences between groups in the population are real. The difference between the mean proficiency or proportion of the two groups ± 2 standard errors of the difference represents an approximate 95 percent confidence interval. If the resulting interval includes zero, there is insufficient evidence to claim a real difference between groups in the population. If the interval does not contain zero, the difference between groups is statistically significant (different) at the .05 level.

The procedures described in this section, and the certainty ascribed to intervals (e.g., a 95 percent confidence interval) are based on statistical theory that assumes that only one confidence interval or test of statistical significance is being performed. When one considers sets of confidence intervals, like those for the average proficiency of all participating states and territories, statistical theory indicates that the certainty associated with the entire set of intervals is less than that attributable to each individual comparison from the set. If one wants to hold the certainty level for a specific set of comparisons at a particular level (e.g., .95), adjustments (called multiple-comparisons procedures) need to be made. One such procedure -- the Bonferroni method -- was used to form confidence intervals for the differences between the average proficiency of states that became the basis of the "higher than, same as, and lower than" figures in Chapters One and Three.

The Bonferroni method was also implemented in determining significant differences across assessment years and among population subgroups of the national samples. Comparisons of proficiency means and comparisons of percentages above achievement levels were treated as separate comparison sets or families, as were comparisons of percentile locations as well as comparisons of proficiency means, percentages at or above achievement levels, and population percentages in each demographic subgroup. For comparisons of demographic subgroups a comparison set or family size was defined by the number of classifications within that variable. A more detailed description of the use of the Bonferroni procedure appears in the *Technical Report for the 1992 Trial State Mathematics Assessment*, including the conventions used in determining family size for the various types of tables contained in NAEP reports.

The standard errors for means and proportions reported by NAEP are statistics and subject to a certain degree of uncertainty. In certain cases, typically when the standard error is based on a small number of students or when the group of students is enrolled in a small number of schools, the amount of uncertainty associated with the standard errors may be quite large. Throughout this report, estimates of standard errors subject to a large degree of uncertainty are designated by the symbol "!". In such cases, the standard errors -- and any confidence intervals or significance tests involving these standard errors -- should be interpreted cautiously.

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